OCTOBER 1999
Volume 67 No 10

Amateur Radio

Journal of the Wireless Institute of Australia

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- An RF Return Loss Bridge
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Amateur Radio

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General

Technical

Columns

Our cover this month

JOTA 99 - The cover photograph is made up of a selection of photos sent in by Christine VK5CTY.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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EDITORS COMMENT

A rod for one's back

Last month I referred to the list of names we had published in August of people to whom Radio Amateurs should be grateful - *"50 People You Should Thank"*. I apologised for mis-spelling some of them (in order of listing they were Ampere, Siemens, Bardeen, Jansky and Ferranti). Shockley was also a notable omission, being with Bardeen and Brattain co-inventors of the transistor.

The list was provided by our production manager (Bob Harper) as a last-minute filler, and I did not see it before the August issue was published. However as I wrote in September AR it seemed a good idea to try yourselves out on the list as invited. (How many do you know of, and what are their full names?) We would (I wrote in complete optimism) publish the correct answers, correctly spelt.

Imagine my surprise to find out a few days after publication that another magazine was running a two-part series on the history of radio, which included many of the names on our list! Eighteen names from their list were also on ours! But we had listed another 34 names which they had omitted, so neither of us can be accused of plagiarism. This, unfortunately, was not the end of the story. Someone (Read "Editor") had to go through the 52 names (no longer 50) to answer the questions so we could publish them in this issue. The list is on page 12

I feel that the expert historians among you will score very highly but have to admit that a few are unknown to me and await Bob's addition for the few I can not trace. How did you score?

Bill Rice VK3ABP

NEW WIA MEMBERS

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of August

L41024	MR R PAGE	VK3XMU	MR M A DODS
L50367	MR I S G PYSDEN	VK4DTM	MR D T MANNERS
L50613	MR N D BITTNER	VK4AAR	MR A ROOCROFT
L50614	MR H J TWINING	VK4VJY	MR S HAZAEL
L60413	MR C A MACKINTOSH	VK4TDL	MR D EYLES
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VK2TAB	MR F S JARMUSZ	VK6WW	MR M FELDMAN
VK3GRW	MR G WAINWRIGHT	VL1MOJ	MR O MOON
VK3WU	MR P GLESSI		

Y2K response thwarted by Y1.999K bug

Alan Shawsmith has asked me to thank you, the readers, for the many responses he has had to his Y2K article.

Unfortunately he has been struck with a bad case of the winter flu (a Y1.999K bug perhaps) which has kept him quiet for some time.

He wants to reply to every letter and email but has been confined to bed for several weeks and is under Doctor's orders to stay away from the computer.

Please join with me in wishing Alan a full and speedy recovery.

Bob Harper VK4KNH.

Comment

Federal President, Peter Naish VK2BPN.

FROM THE PRESIDENT

This is going to be a shorter than usual report this month because I am presently taking a few days holiday with my wife in Tasmania.

This does not mean that the affairs of the WIA have been banished from my mind because I am taking the opportunity of meeting with our members in VK7, an activity that I look forward to.

Despite the many avenues of communications open to us all these days, the face to face meeting still provides the best means of getting to know what the amateur radio enthusiast is thinking and how the WIA ought to be reacting.

This personal association with amateurs, whether they be members of WIA or not, enables me to hear at first hand about the issues that are worrying them.

Equally importantly, it provides a forum for me to explain how the WIA operates at the Federal level and how we contribute to the benefits of membership. Remember, however, that responsibility for the members rests firmly with the state Divisions.

It is their duty to service members requirements but WIA Federal remains ever ready to assist the Divisions in this task. Together we will work to enhance the benefits of WIA membership and the amateur radio service in general.

ar

Peter Naish VK2BPN.

Have your say (in writing)

ARRL Seeks Future Technology Proposals

The recently formed ARRL Technology Task Force wants to hear from hams with ideas and proposals for new technology to carry Amateur Radio into the next century.

The Task Force and a Working Group will work hand-in-hand to identify, evaluate, and promote the most promising 21st Century technologies for Amateur Radio.

Amateurs are invite to complete the form on ARRLWeb at http://www.arrl.org/news/ttf/, e-mail to ttfinput@arrl.org, or offer your ideas by mail to the ARRL Technology Task Force, c/o Ed Hare, W1RFI, 225 Main St, Newington, CT 06111.

Suggestions are requested by November 30 .

Full details on next page

WIA News

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New approach to protect public from exposure to EMR

The Australian Communications Authority (ACA) has embarked on a new co-operative approach for the regulation of human exposure to electromagnetic radiation (EMR) generated by telecommunications equipment. The proposed regime is based on a new EMR standard to be developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), as well as a Code of Practice, to be developed by the Australian Communications Industry Forum (ACIF).

The ACA's existing regulatory scheme utilises the exposure limits and field strength levels in the document known as AS/NZS 2772.1 (Int): 1998 - Radiofrequency fields Part 1: Maximum exposure levels - 3 kHz to 300 GHz. As part of the proposed changes to this regulatory system, this document will be reviewed by an expert group appointed by ARPANSA - an Agency within the Commonwealth Health and Aged Care portfolio which has the legislative authority to develop standards. A part of this review will require the group to develop exposure limits consistent with scientific research findings and world's best practice. A new ARPANSA EMR standard is expected to be published by the end of 2000.

ARPANSA will consult extensively with the public to ensure that stakeholders have an opportunity to contribute and comment on the development of the new EMR standard

In conjunction with the new standard, ACIF has commenced the process of developing an EMR Code of Practice for the telecommunications industry that will operate in parallel to the standard. The Code will be developed by ACIF in line with the Telecommunications Act 1997. The ACIF Radio and Environs Reference Panel is proceeding to draw up Terms of Reference for the Code for operators of cellular mobile base stations.

To reach this decision, the ACA conducted extensive consultation with representatives of the telecommunications industry, unions and community groups. All groups agreed with the proposal.

The ACA first introduced a regulatory scheme in February 1999 to address community concerns about increasing exposure to EMR. A range of equipment and services generate EMR, including radio and television broadcast stations, mobile phone handsets and base stations, radiocommunications systems and remote garage door openers.

The ACA will keep the public informed of progress on this issue.

(ACA Media Release No. 52 of 1999 - 17 August 1999)
www.aca.gov.au/media/52-99.htm

VNG Struggles On

Ron VK3AFW reports that VNG still struggles to survive... are Australian Amateurs sufficiently interested in this service to help it continue operation?

Standard Time and Frequency station VNG is run under a contract that will end in June 2002. After that date the site owner proposes to sell it off to the highest bidder, probably for housing development. If the market is not buoyant at the time the sale might be put off and VNG might limp along for another year. But then it will close down. If you use VNG in your work or hobby then you need to make your need known to the National Time Committee or the VNG User's Consortium.

It was thought that VNG would close this last June 1999, however, funding was found at the last minute. Earlier this year a voice announcement on VNG asked users to contact the VNG Users Consortium if they needed the service to continue. I believe that about 50 astronomers responded and three other people with different interests, a clock designer, a radio amateur and a physicist at a university.

I find VNG to be the only 24 hour time signal that I can rely on. WWV, WWVH, JJY are all unavailable at times during the day. GPS can give excellent time but there is no audio announcement, which I find very useful.

I urge users of Australia's T&F HF reference to make their needs known. I am prepared to collate emails and forward them. Otherwise donations and comments should be sent to the VNG Users Consortium direct.

Irrelevant to VHF?

Not for me. I use the VNG timing for setting/checking my analog clock for my meteor scatter skeds and to check the station digital clock. I also use it to check my frequency standards, so that I can minimise my transmission frequency errors.

(Ron VK3AFW)

ARRL Seeks Future Technology Proposals

The ARRL Technology Task Force wants to hear from hams with ideas and proposals for new technology to carry Amateur Radio into the next century. The ARRL Board of Directors created the Task Force and the companion Technology Working Group last January, and ARRL President Rod Stafford, W6ROD, has appointed a number of leading amateurs to serve on both panels. The Task Force and the Working Group will work hand-in-hand to identify, evaluate, and promote the most promising 21st Century technologies for Amateur Radio.

The Technology Working Group will evaluate technical proposals and make recommendations to the Technology Task Force, which, in turn, will make specific policy proposals to the ARRL Board of Directors.

The Working group is an expert panel selected from among League members representing a broad spectrum of Amateur Radio interests and activities.

The Task Force invites information and concepts on a wide range of technologies with the potential to improve Amateur Radio and to promote what the FCC calls "continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art." The Task Force invites the submission of ideas and proposals from all parts of the amateur community, and will use the input to help formulate League policy recommendations on a wide range of technical issues.

Amateurs are invite to complete the form on ARRLWeb at http://www.arrl.org/news/ttf/, send e-mail to the Task Force at ttfinput@arrl.org, or offer your ideas by mail to the ARRL Technology Task Force, c/o Ed Hare, W1RFI, 225 Main St, Newington, CT 06111. Suggestions are requested by November 30, 1999-09-11

(ARRL Bulletin ARLB061)

FCC Relaxes Rules for Spread Spectrum

The FCC has relaxed rules governing the use of spread spectrum techniques by radio amateurs and opened the door to the possibility of international spread spectrum communication. The Report and Order in WT Docket 97-12 adopted August 31 concludes a proceeding that originated with an ARRL petition in December 1995 and has been pending since 1997.

The FCC adopted rules that will allow Amateur Radio stations to transmit additional spread spectrum emission types. Once the new rules become effective November 1, hams will be able to use techniques other than frequency hopping and direct sequence spreading. In addition, the new FCC rules will permit US hams to use spread spectrum techniques to communicate with amateurs in other countries that permit SS. Spread spectrum communication has been limited to stations within FCC jurisdiction.

The new rules require that spread spectrum stations running more than 1 W incorporate automatic transmitter power control. Amateur stations using SS are restricted to a maximum power of 100 W.

The Commission also amended the rules to eliminate what it called "now-unnecessary record keeping and station identification requirements" that apply only to stations using spread spectrum. The FCC agreed to let SS stations identify themselves using conventions developed by the Amateur Radio community.

Roanoke Division Vice Director Dennis Bodson, W4PWF, who has followed the League's Spread Spectrum initiative through from start to finish was pleased with the outcome of the proceeding. "I'm very happy," he said. "The League got everything it wanted and more—all of which, I believe, will help to promote this mode on the amateur bands."

Stations employing spread spectrum techniques will remain secondary to—and must accept all interference from—stations employing other authorized modes. The FCC declined to authorize the use of spread spectrum techniques on additional bands or frequencies.

A copy of the FCC's complete Report and Order is available at http://www.arrl.org/announce/regulatory/wt97-12.

(ARRL Bulletin ARLB062)

WIA Queensland Incorporation Completed

The Secretary of the WIA VK4 Division reports that the Incorporation of the Division is now complete, and the VK4 Division is now officially "The Wireless Institute Of Australia Queensland Division Incorporated."

We should now have funds released to us by the solicitor to allow us to resume normal operations. During the last couple of months there have been some difficulties particularly in the office, bookshop, disposals and QSL areas due to the lack of available funds to allow normal operations. We thank the people managing these areas for their patience during the period, which started with the start of winding up of the company and ended with incorporation.

I would also like to thank those members on council who used their own funds to keep the division operating during this period, thanks also to David VK4OF our Secretary for all his efforts without which we would not be incorporated yet.

Special thanks to the office of fair trading for their special treatment in fast forwarding our incorporation particularly when they are having a reorganising of their office.

(Via QNEWS)

New 10 GHz Distance Record Set in VK4

On Sunday 5th September, Wally Howse VK6KZ/4 (the traveller!) and VK4OE extended the existing VK4 distance record for the 10 GHz band. The existing record was established when VK3XPD, VK3ZQB, VK5NC and VK5DK did their multi-state microwave 'bash' about three years ago.

VK6KZ/4 set himself up on Springbrook Mountain on the VK2/VK4 state border in behind the Gold Coast, and Doug VK4OE travelled three and a half hours by road up to Hervey Bay to a vantage point near to where Glen VK4TZL lives. The path is about the longest that could be considered in South-East Queensland which has minimal 'terra firma' intervening between the two locations.

After the usual (and necessary) careful setting up of dishes and finding correct beam headings, Wally was hearing Doug's carrier and after final optimisation, they

exchanged 3/1 and 4/1 reports on SSB. Quite characteristic fast QSB or 'wobble' in signal strength over a path of approximately 330 km, which is way longer than line of sight. Propagation could not be regarded as particularly enhanced on the day, but there was a slow moving high pressure ridge aligned with the Southern half of the Queensland coast at the time.

Equipment was pretty similar at each end, being about one watt transmitter output fed to dishes around 600mm in diameter, and HEMT LNA's ahead of what are essentially G3WDG transverter systems and IC202 tunable IF's.

Quite a thrill and reinforcing of efforts to 'push the limits' even further. Much more is possible!!! There are lots of good experiences available in the microwave area, as everyone who has already discovered it will confirm ! In an earlier attempt VK4OE did hear his signal (very weak) when an aircraft was on direct alignment with the beam. Maybe there is more research and possibilities for aircraft enhancement on µwave bands, not just VHF/UHF.

QNEWS understands Rod VK4KZR and Doug VK4OE are building 24 GHz narrowband gear and one of their aims is to 'steal' the distance record for that band back from the VK3's and VK5's who set it at the same time as the 10 GHz record two or three years ago.....

(via QNEWS)

World Survives GPS Rollover

As many will be aware, the Global Positioning System "rolled over" at midnight UTC on 22nd August 1999. The ten-bit counter that records the number of weeks since GPS was "born" on 6th January 1980 ticked over from 1023 back to 0; this made older GPS receivers display incorrect positioning information.

While most GPS users didn't notice, because newer receivers were programmed to take account of the rollover, there were a few problems around the world.

The ABC reported on 5th September that a young pilot in Western Australia got lost during a flight from East Kimberley to Broome. Police in Port Hedland about 600 kilometres south of Broome received a distress call from the pilot around 8.00pm on 4th September, saying he was lost and running out of fuel.

The Great Northern Highway was closed about 40 kilometres north of Port Hedland to allow the plane to land, but the pilot managed to carry on and land at Port Hedland Airport.

The Australian Financial Review had reported that an estimated 100,000 users of car navigation systems got lost in Tokyo's unnamed back streets as their systems, "froze or went blank as the system rolled over into its new time sequence". The manufacturer of the systems, Pioneer adapted or replaced 210,000 of its 270,000 affected systems.

And the Irish Marine Emergency Service dealt with a yacht on route from the Scilly Isles to Kinsale which ran into fog and heavy weather south of Ireland. Local reports say that "The Tam-o-Shanter" radioed for help when its Global Positioning System began to misread the boat's position. The crew were further hampered by extremely heavy weather and a torn sail. With the aid of the IMES and Coast Radio Stations, a position was given and the yacht made its way back to Kinsale Harbour.

(from the ABC web site, the Risks Digest, and Radio Telefis Eireann web site)

Darryl VK2TDS notes that a complete list of manufacturers, phone numbers, and Web sites is available at:

www.navcen.uscg.mil/gps/geninfo/y2k/gpsmanufacturers/manufacturers.html

As this column was being compiled, people were breathing a sigh of relief that another Y2K cousin, the "9/9/99" bug had few if any serious repercussions (though one US electronics retailer was reported to have paid a customer a sizeable amount of interest on his overpaid account. The interest payment apparently was more than the total value of goods the customer had ever bought from the store!) Notwithstanding this, some may be tempted to think that the "real" Y2K bug may also be a fizzer. Hopefully, all the remediation carried out by companies and governments will make it so, but it would be unwise to assume that will be the case.

Speaking of the misnamed Millenium Bug, those of you with nothing better to do on New Year's Eve can watch how the world - starting with New Zealand - copes with the year 2000, on a special emergency watch web site.

The real-time, comprehensive Web-based view of the Y2K problem - and any havoc it may be wreaking on essential services anywhere - is the work of a World Bank-funded outfit known as the International Y2K Cooperation Centre.

Its Web site will flash colour-coded indicators on everything from energy and communications to financial services, government services and air, land and sea transport.

Anyone with access to the Internet will be able to monitor, country by country, the status of the technology-challenging date change - assuming the Internet itself does not go haywire.

For more information, visit the International Y2K Cooperation Centre web page at http://www.iy2kcc.org/

(via ABC web site)

SCDXC now SK

Stephen Newlyn VK5VKA reports that after 26 years the Southern Cross DX Club has closed down due to a lack of administration staff and a decline in membership.

Stephen asks that references to the club's web page and mailing lists be deleted.

Geolocation Technology Pinpoints Wireless Emergency Calls Within 15 Feet

Researchers at Lucent Technologies' (NYSE: LU) Bell Labs have developed the most sensitive technology yet for pinpointing the location of wireless 911 emergency calls. The approach is accurate within 15 feet when users are outdoors and 100 feet when they are indoors.

The Bell Labs geolocation technology offers marked improvements over currently deployed systems for locating wireless 911 emergency calls. Moreover, it provides network operators the double benefit of meeting a 2001 federal mandate while opening opportunities for new service revenues. For example, pinpointing a customer's location could yield such services as detailed driving directions and local traffic information, especially when combined with improved data services expected two years from now.

"We intend to pursue standardization of this geolocation technology so that it can be widely and inexpensively deployed," said John Freidenfelds, director of wireless technology applications at Lucent's Wireless Networks Group.

The Bell Labs technology works with all of today's global digital networks and also will be compatible with next-generation (3G) broadband wireless networks, which will provide a broad assortment of location-based services, as well as high-speed, Internet-based multimedia services.

The driving force for the Bell Labs research has been a U.S. Federal Communications Commission mandate stating that by October 2001, all wireless 911 calls must be pinpointed within 410

feet. Currently, wireless 911 calls can be pinpointed within only a three- to six-square mile service area on average.

The Bell Labs geolocation technology would provide more precise location information to police, which is especially helpful when callers are unfamiliar with their whereabouts, and also would allow 911 calls to be routed more quickly to the appropriate rescue squad.

The Bell Labs approach involves both the wireless handset and network infrastructure. Global positioning system (GPS) units are placed throughout a wireless network. As the units keep track of GPS satellites orbiting the Earth, they pass along key satellite information - including estimated time of the signal's arrival - to nearby wireless handsets, which are equipped with scaled-down GPS units. Then, based on time differences between when the network's GPS units and the handsets receive signals from the satellites, it's possible to precisely pinpoint the handset's location.

For more information visit the Lucent Technologies site at http://www.lucent.com or the Bell Labs web site at http://www.bell-labs.com.

From a Bell Labs - Lucent Technologies press release via Science Daily (http://www.sciencedaily.com/releases/1999/06/990630014801.htm) and HamRadio-Online

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WIA/IARU News

Prepared by Grant Willis, VK5ZWI
WIA Federal / IARU Liaison Coordinator

Dr David Wardlaw VK3ADW Elected IARU Vice President

In May this year, David VK3ADW was elected to the position of IARU Vice President. Larry Price W4RA was elected President. David takes over from Michael Owen, VK3KI who has held the post for some time. David's appointment is for a period of 5 years. Prior to this, David was on the board of directors for IARU Region 3. His IARU Region 3 position has been decided to be left vacant by the board until next year following David's appointment.

11th IARU Region 3 Conference - Year 2000 Australia

At the May AGM of the WIA Federal Council, a proposal was voted on to stage the 11th IARU Region 3 Conference in Darwin, NT. The dates have been set (25th August to 1st September) and hotel venues selected. Many other arrangements are also already falling into place. The Darwin Amateur Radio Club is supporting the conference at a local level, thanks to the assistance of Spud Murphy VK8ZWM, who has been involved in organising two other international conferences in Darwin in recent years (SEANET '92 and '97).

The 11th IARU Regional conference is a working meeting for all member countries of IARU Region 3. Delegates from all over Asia and the Pacific will be in attendance, as well as members of the IARU Administrative Council, the peak body that oversees global amateur radio policies, particularly those being represented to the International Telecommunications Union (ITU) at the World Radio Conferences.

This is the first time, since the formation of the IARU Region 3 body, that the conference has been held in Australia. The WIA was one of a number of societies who were involved in the formation of the original IARU Region 3 body many years ago. News on agenda items for this conference will be included in AR Magazine as the dates get closer. Issues that are already expected to arise include the 7MHz amateur band international realignment, the international amateur regulations and Morse code requirement, just to name a few.

Members will be able to be a part of the conference through making contact with the special event station that is planned to be operating from Darwin during the conference.

WIA IARU Liaison Officer Meets Other IARU & ARRL Officials in the USA

While on holidays in the United States, I was fortunate enough to meet with several other IARU officials.

Among those included Larry Price, W4RA (IARU President), Tom Atkins VE3CDM (IARU Region 2 Chairman), Dave Sumner K1ZZ (Executive Vice President ARRL) as well as Rod Stafford (ARRL President) and Paul Rinaldo W4RI (ARRL Washington office) whom we met at the Dayton Hamvention.

Discussions with Larry W4RA and Dave K1ZZ were particularly interesting and covered many of the issues that will be raised at the IARU Region 3 conference in 2000. An opportunity to again meet Dave K1ZZ arose when I visited the ARRL HQ and W1AW in Connecticuit. We spoke for several hours, at which time Dave presented me with an ARRL tie. (see photo).

Many of the people I met will be making the trip to Australia next year, and it was very useful meeting many of them beforehand.

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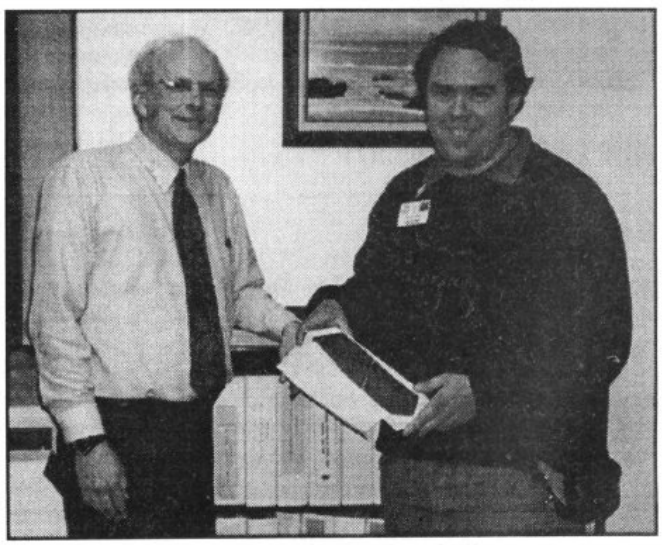

Photo 1 Dave Sumner K1ZZ presents Grant Willis with an ARRL Tie.

Divisional News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

A Novice course is tentatively scheduled for October. However, an instructor/teacher in basic electronics and/or Morse is required for this course. If you have some experience in this field, please let me know. Anyone interested in joining the class, or upgrading from the Novice to the full call licence should take up contact with myself, or Gilbert Hughes, VK1GH, our president (6254 3266).

A useful and beneficial association is likely to develop between the Canberra Scouts and the WIA VK1 Division. Negotiations are underway to set the rules under which the WIA may use the facilities of the Scout hall in Hughes. It comprises three rooms, all of which contain transmitters, transceivers, hand-helds, computers, and teaching aids.

At present, these are used to introduce scouts to the world of communications via the amateur bands, Internet, Packet, and Citizen Band operations. Scouts enjoy learning to operate all the equipment that is there. In return for the use of the facilities, the VK1 Division provides a licensed radio amateur to maintain and demonstrate the equipment when required.

The area around the Scout hall is grassland, ideal for BBQs, antenna testing, field days, fox hunts, Trash & Treasure sales, and let's not forget the monthly meetings.

If you are a VK1 amateur and interested in maintaining the gear and occasionally demonstrate it to young scouts, give me a call on (02) 6231 1790. Just to remind you that the Scouts have their Jamboree-On-The-Air (JOTA) on 16 and 17 October. They are maintaining a four-decade tradition of annual radio communication events for Scouts worldwide. This year's JOTA will be their 42nd. A fact sheet on JOTA, which includes all the operating frequencies, is available at **http://www.scout.org/jota**

A fascinating screensaver that helps in the Search for Extra Terrestrial Intelligence (SETI) is available from Berkeley University (USA). The screensaver software processes signals received from the Arecibo dish antenna and shows the result on the screen. For details see their website at:

http://setiathome.ssl.berkeley.edu and be thrilled.

Our next general meeting will be on the 23rd of October in Room 1, the Griffin Centre in Civic, Canberra City.

Cheers to all.

pkloppen@dynamite.com.au

VK2 Notes

Pat Leeper VK2JPA

patleep@bigpond.com

The Olympic Coordination Officer (Geoff VK2EO) has asked VK2 clubs for a show of interest in using the special event callsign during the year 2000. Response to date has been light and clubs are requested to consider the offer and forward a reply on their decision to Geoff either via the Parramatta office or to Geoff direct at vk2eo@idl.net.au. This is definitely a once-in-a-lifetime offer so think of your members and don't miss out!

It is anticipated that an 'Olympics Award' will also be set up but this is still in the planning stage.

The number of new members who have joined the VK2 Division this year for the period to end July has reached seventy two, consisting of fifty six licensed amateurs and sixteen associates. Why not ask your fellow club members who are not yet members of the WIA to join us and strengthen our voice with the 'powers that be'. In this era of 'sell-off of the spectrum', we need to raise our profile with as many members as possible. Remember: the WIA represents ALL amateurs in dealing with the government –push that point to potential members!

From Council business over the last couple of months, here are some of the matters of interest:

After lengthy discussions about Licence Fees in general, the following motion was carried "That the WIA/ACA Liaison Committee be asked to discuss with the ACA the possibility of waiving all fees for Amateur licences, starting with the Amateur Repeater licences."

An agenda item has been put forward for discussion at the next VK2 Affiliated Clubs Conference to the effect that NTAC would like to make it WIA policy to encourage the placement of CTCSS encoding on the output of repeaters, to filter out pager interference.

The VK2 QSL Bureau has agreed to handle minor country cards for the VK7 Division Bureau. With improved propagation, QSL card numbers have increased quite considerably, and it was decided that non-members cards will now not be returned to overseas bureaux, but filed in the 'big bin'. If you know someone who is not a member of the WIA and does not intend to QSL, please tell him/her to let the overseas stations know this and save the VK2 bureau a lot of unnecessary work in the coming busy part of the solar cycle.

Our thanks go once more to the Westlakes Club and its members who do such a tremendous job in running the QSL Bureau for VK2.

The shipping container previously used for storage at the Dural transmitter site has become surplus to requirements after rationalisation and sale of outdated and unwanted (for the station, that is) equipment. A buyer has been found and it will be removed in the near future.

FTAC have been in contact regarding a national APRS frequency, but have suggested 145.000 rather than the overseas norm of 144.390. NTAC will make a recommendation in due course.

For some time now Council has been considering a Honour Board showing President, Secretary and Treasurer for each year. Council enlisted the aid of the VK2 Historian Jo Harris VK2KAA who now reports that she has managed to compile an almost complete list of office-bearers from 1910.

The list is only lacking the names of three Treasurers. The Secretary has now called for quotations from suitable suppliers. The Historian would always like to hear from old timers who have reminiscences and/or old magazines, photographs or clippings of historical value to the VK2 Division. You can contact Jo on 02 9489 4393 or write to WIA Historian, 59 Westbrook Avenue Wahroonga NSW 2076.

The VK2 Conference of Affiliated Clubs is to be held on Saturday November 13th at Amateur Radio House, Parramatta. Please ensure registrations are received by the

office not later than Friday November 5th so that final figures can be given to the caterers.

Agenda items from Clubs, who are attending, must be advised to the office not later than Monday 25 October to enable a full agenda to be prepared and forwarded to all delegates. This is particularly important in respect of questions to be directed to the ACA Representative because they require at least 14 days notice to enable any necessary research to be carried out. Please remember that items for the agenda must be supported by an explanation giving the reasons, in brief, for submitting them so that when circulated to delegates it enables positive discussion.

JOTA

Don't forget that JOTA is on the weekend of 16th-17th October! If you can't run a station personally, why not inquire where the nearest station is and go and give a hand, if only for two or three hours. These young people are our future –do your best to encourage an interest in Amateur Radio for the survival of the hobby.

The text of VK2 Broadcasts is now available on the packet system and the web site shortly after the Sunday evening transmission (see the WIA Division Directory in this issue for the web address).

VK4 Notes

Qnews

Alistair Elrick VK4FTL
QTC Editor

We'll begin with a request from Bob VK4HAG who would like to hear from members of the State Emergency Services in any state or territory of Australia who are Amateurs. Bob has started a mailing list on VK4WIP with about 7 members of the SES who are Amateurs. The idea would be to swap comments etc. the usual stuff to foster friendship, that kind of thing. Bob has sent a message to the current list of members asking if they are interested in starting a HF net as well. This will populate the bands a little more and achieve the aims listed above.

If you would like to know more, or if you know of any one that would like to contact Bob VK4HAG in relation to this project, he can be reached many ways,

Packet:	VK4HAG @ VK4WIP
Internet:	spanky@hypermax.net.au
Phone:	(07) 3812 3684
Snail mail:	1 King Edward Pde. Ipswich. 4305.

Mark this one in your calendars now: SATURDAY NOVEMBER 13th - GOLD COAST HAM FEST. The popular Gold Coast Amateur Radio Society get together on the Fabulous Gold Coast of Queensland. Venue as usual will be the Albert Waterways Community Centre, Sunshine Blvd. Opposite Pacific Fair Car Park, Mermaid Waters.

Meetings of the GCARS are held on the 2nd Friday of the month, 1930 hrs K with the Committee meeting the LAST Friday of the month. Each and every Saturday from 1400 hrs the clubhouse is open for members and visitors to the Gold Coast. Clubrooms are at 85 Harper Street Nerang. Call the Club on 018 763 044.

The Mackay Amateur Radio Association's Annual General Meeting went off OK!

Good luck to a mostly new Executive Committee. They now have:

President: Bruce Lenahan VK4NPF

Secretary: Wal Douglas VK4AIV

Treasurer: Ron Kerle VK4EN (who agreed to take on the position again this year.) Thanks to Brian VK4KBS colem@orion-online.com.au for the report on this.

News to hand that after more than 10 years of dedicated and reliable service, George VK4AJL has decided to pull the plug on his packet radio BBS. George says that due to a dwindling amateur packet radio userbase in the Mackay region and an alleged indifference from sysops further inland, he can no longer justify the massive investment he has made.

Packet mail for h.addresses VK4AJL. #CQ.QLD.AUS.OC and VK4BRG. #CQ.QLD.AUS.OC should be directed via the VK4KTD packet BBS at Innes Park QLD. The Townsville Amateur Radio Club wishes George all future success and thanks him for being a reliable and dependable source of packet traffic over all those years!

From further north, parts of the #NQ BBS packet network are trialing the Nordlink TF27-10 XHOST firmware in place of the WA8DED HOST 2.5 firmware in BBS TNC's. VK4RAT and VK4ZZ have the new firmware installed with eventual fitting also to VK4RSB, VK4TUB, VK4DO and VK3TCD. The TF27-10 firmware will allow up to 10 simultaneous connects per radio channel and also automatically sense DAMA capable stations, to improve throughput during congested traffic times.

The JOTA stations in the state are already starting to gear up for the 1999 Jamboree-On-The-Air, with groups contacting their Amateur Radio operators to prepare for the big event during the third weekend of October. If you want to participate, contact the Queensland Radio Scouting Co-ordinator, Steve VK4SGW, phone 07 4723 2185, there is always room for willing helpers.

From Townsville WICEN, where operators had recently been on the job since 3 AM in the morning. They provided a basic radio relay network plus safety comms for the Horse Endurance Riders during the final planned comms support event for 1999. This last event is helping the NQ WICEN operators hone their operating and map reading skills and preparing equipment for the upcoming cyclone season and possible Y2K shambles in the New Year. Les VK4ALS wishes to thank everyone who participated in the 1999 round of WICEN comms support events and hopes that everyone is now better prepared for disaster communications techniques.

Still staying in the north the Tableland Radio and Electronics Club auction was a great success. News via Mike VK4MIK on the North Queensland Net last Sunday evening that the fantastic TREC auction was an outstanding event, with auctioneer Dave VK4KGV yelling himself hoarse and moving an incredible amount of treasure out of the clubroom. Most recipients are pleased with their new acquisitions and can't wait for the next one!

Finally one of those good news stories this time from Rick P29KFS who says Ray VK4BLK has virtually completed the P29BPL beacon and awaits crystals for the 50.029 MHz. frequency. Rick asked Ray what the PNGARS owed him for his effort and the hardware, VK4BLK says that the Rockhampton and District Radio Club (RADAR) are donating the 828E without cost. PNGARS really appreciate this fine gesture from RADAR, particularly to VK4BLK. Well done RADAR Club for the fine spirit of AR shown, from all Amateurs, especially the devotees of 6 metres.

VK6 Notes

Chris VK6BIK
(chrismor@avon.net.au)

CW Survey

The VK6 Division Councillors are to be lauded for their excellent CW Retention/ Abolition survey currently under way. The Division is conducting a survey to find out if VK6 amateurs want Morse code to be maintained as an exam requirement. The question is answered with a YES to keep Morse code, even if you believe the speed requirement should be lowered, or a NO vote if you believe Morse code should no longer be a requirement for any grade of licence.

This survey is open to all VK6 amateurs, not just VK6 WIA members. The survey is very unambiguous, and makes use of ALL

modes of communication available to us, including the "novel" idea of using the radios we all surely possess, by simply casting your vote during the WIA Sunday Broadcast call-backs! More discreet methods of voting (if req'd) include packet, post, telephone, and Internet.

Results so far: NO = 109; YES = 83

If similar results are forthcoming from the other Divisions also conducting surveys, the WIA Federal will have a very clear popular mandate to proceed accordingly !

VK6 Division Internet

The Home Page has been substantially re-vamped and updated recently and is easy to navigate and excellent reading – good job Christine! The URL is via a new server at:

http://www.omen.net.au/~vk6wia/

Winter Sprint Test

Results are now to hand for the VHF Group's recently held "Winter Sprint" contest, briefly reported last month. Points were scored as follows; VK6KZ 32, ZWZ 25, ZKO 19.5, BIK /p 15, NGW 13, BOS 13, IQ 12, YEH 8, YKS 6.5, ZLT /p 6 – country stations participating were 6BIK, 6PM (both Toodyay), 6ADI (Beverly), and 6ZLT /p. Well done again Wal ! Others participating did not submit logs or call in their results. Those who did not participate at all for whatever reason, have my sincerest sympathy.

Avon Valley Group gathering

On Sun 22/8, a surprisingly large group of ± 18 amateurs, wives, partners, and friends got together in response to an invitation from John (VK6BOC) and Claire Hills, for tea and a chat at their QTH in Toodyay. Well done on this initiative John and Claire! The visitors came from a wide area, known as the Avon Arc, stretching from Beverly to Bindoon, and including the areas as far east as Merreden and west to the escarpment. It is planned to follow up with further activities in the summer, such as a BBQ and field station, working bee at VK6RAV near Northam, etc... In the meantime, don't go to ground again folks, and hope to hear you all on the Avon Repeater occasionally !

Microwaves ?

The VHF Group has a net 2nd Monday of every month, in which vhf/uhf gear can be tested, right up to 24 gigs. This net starts at 8:30 p.m. on a liaison frequency of 145.175 FM.

LIPD and Public safety

Congratulations to Rob VK6TRC on solving the vexing interference problem with one of our local 70cm repeaters, VK6RTH, situated at Tic Hill, approx. 30km NE of Perth City on 433.225 / 438.225MHz. Apparently the situation involved the use of heavy machinery, with implications for workplace safety. It has been fully reported in the Sept. issue of AR.

From the Minutes **(Sept. Council Meeting)**

Neil VK6NE has been appointed the new QSL Bureau Manager for VK6. The retiring manager Jim VK6RU has been QSL Manager for the VK6 Bureau for a period of 61 years, interrupted only by the closedown of Amateur Activity during the 1939-45 World War. The Secretary will write an appropriate letter of appreciation to Jim.

A letter of resignation was received from Keith VK6XH as Councillor due to pressure of business.

Council accepted Keith's resignation with regret. The President Cliff VK6LZ proposed a vote of thanks to Keith for his participation as Council Member over the past several years. The vote was carried with acclamation. It was proposed that the Secretary write to the NCRG seeking a nomination to fill the casual vacancy created.

The present bookshop stock had been held for a long period. It was agreed that there would be a "monster sale" at heavily discounted prices at the November Ham Fest with the view of quitting the stock.

There was one new member application and Kim Rhodes, VK6TQ was warmly welcomed to the Division. Mel VK6TVA had resigned as evening Broadcast Operator due to pressure of business. Neil VK6BDO has offered to fill the vacancy. The 21 MHz relay position has now been filled with the return of Reg VK6YE.

Finally, many thanks to Chris VK6KCH, for organising the excellent evening presentation (reported elsewhere I believe) on P3D, held at Wireless Hill with a very large audience in attendance. It was worth the 200 km round-trip Chris !

73 from Toodyay, Chris VK6BIK
(chrismor@avon.net.au)

VK7 Notes

QRM

Ron Churcher, VK7RN

Amateurs around Tasmania are really looking forward to a visit by our Federal President in the first week of this month, October.

Peter is holidaying in "Heaven itself", meaning of course Tasmania, and is happy to be able to meet the North and North-west members at a combined meeting and the southern members during the week after that.

We are sorry that John Bates, VK7RT has had to give up the job as our Southern branch Secretary but we are heartened by the news that he has groomed a worthy successor in Dale Barnes, VK7DG. Thank you John for a job well done. John is also State treasurer and QSL manager so he has still got plenty to do!

The Southern branch members have been hard at it in September providing communications for the big "Southern Safari" car rally.

It was a big job performed with the usual expertise. There are some VERY difficult areas around the mountains but portable repeaters at strategic positions made light work of the problems.

It's been great to see some faces at our branch meetings that we have not seen for some time.

Our branch Presidents and Secretaries are working hard to make these meetings interesting and worth making an effort to get to and I think it's working.

Cheers for now — Ron, VK7RN, State President.

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CLUB NEWS

Assembled by Bob Harper VK4KNH
Send Club details to AR C/o WIA Federal Office
or ar@wia.org.au

Please send all the club news and announcements that is relevant to Amateur Radio in general.

VK6 HAMFEST 1999

The Northern Corridor Radio Group (NCRG) is holding the 1999 VK6 HAMFEST on Sunday November 7th 1999 between 10am and 2pm.

The venue will be The Cyril Jackson Community Centre in Fisher Street Bassendean. (Same as last year)

The NCRG would like to invite all equipment suppliers, clubs or individuals to participate. Please contact the co-ordinator as soon as possible to ensure your space is reserved.

The previous Hamfests have been very successful in attracting a large attendance of the local amateur, CB and radio enthusiasts.

The Hamfest co-ordinator is Jack Borthen VK6KDX, email: jackborthen@bigpond.com or mail to Hamfest: PO Box 244, North Beach WA 6920.

Regards from VK6

High Frequency PACTOR BBS - VK5BAR

The Adelaide Hills Amateur Radio Society (AHARS) has established a High Frequency PACTOR BBS, in Adelaide, to allow remote area stations and those out of range with local VHF Packet BBS stations, to make contact with the AX25 Amateur Packet Network. The project has had the help and cooperation of the South Australian Packet Users Group (SAPUG)

The BBS operates on the following MARK frequencies:

3629.9kHz (LSB) 0831Z to 2200Z
21072.9kHz (LSB) 2201Z to 0830Z

Frequency changes are made manually at present, however these will shortly be program controlled, and may include 28072.9kHz. These have been chosen to allow access to "Intermediate" Licensees, as well as "Full" Calls.

Tones in use are MARK 2095 and SPACE 2295Hz, using PACTOR 1 protocol.

Connection with the BBS is by calling with "C VK5BAR", whereupon, on a successful response, a list of Bulletin Categories will be displayed. These may be read or listed as required. There are approximately 100 Bulletins in about 25 Categories available.

Full "HELP" information is available from the Command Line prompts.

One ESSENTIAL need is to address any mail left in the VK5BAR BBS, by the correct and full hierarchal address, eg. VK5RRR@VK5TTY.#ADL.#SA.AUS.OC (or any other address in the world meeting this complete format). Mail left on VK5BAR is forwarded to VK5WI and the AX25 Network once each hour.

Commercial Multimode Modems (TUs or Controllers) including the KamPlus, MFJ 1276 and 1278B, Paccom SCS, etc. have operated successfully on the system, using suitable communications software.

Home built Modems using Shareware programme "TERMAN93" by HB9JNX, and "BMKMULTY" by G3BMK may also be used. Modified older ST6 and ETI730 designs, from early RTTY days, work quite well with these programmes. A source of suitable circuit boards to assist in the construction of a more modern Modem, has been Norm Rosenzweig, VK5ZAH, of Angaston, SA.

Interested PACTOR users are welcome to log into the system at any time, and make this BBS, their "home BBS", if others are not available. Contact for assistance is Rob Gurr — VK5RG@VK5WI.#ADL.#SA.AUS.OC (Packet) or email: gurrrc@picknowl.com.au.

From Rob Gurr VK5RG, for the Adelaide Hills Amateur Radio Society

PS. My apologies go to the Adelaide Hills Amateur Radio Society for not printing this information earlier. We keep records of all items received and try to avoid any lost items but it can happen. If you have sent an item that was not printed when you expected to see it, please follow it up.

1999 Sunfest Qld.

The Sunshine Coast Amateur Radio Club of Qld recently held their Hamfest known locally as Sunfest . It was well attended by Amateurs and non-amateurs alike from far and wide and offered a wide variety of private and commercial tables and stalls. The early rush made for some frantic buying and most of the worthwhile items were gone almost immediately. Enclosed are a few photographs of the event, courtesy of Chris Edmondson VK3CE/4.

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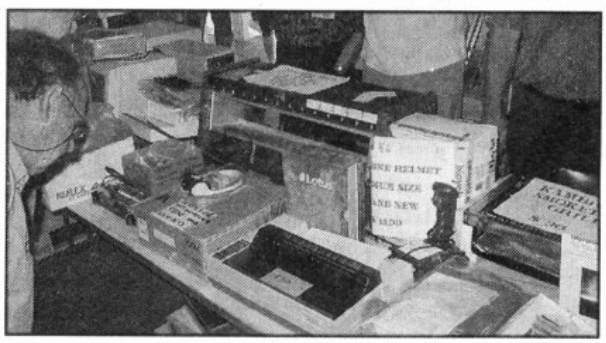

ALARA

Christine Taylor VK5CTY
ALARA Publicity Officer
16 Fairmont Avenue, Black Forest 5035
Packet: VK5CTY@VK5TTY
geencee@picknowl.com.au

Alarameet

All is now in readiness for the ALARA-Meet in Brisbane over the first weekend in October. People are arriving from all parts of Australia and overseas. A contingent from New Zealand will be there and a couple of other overseas YL folk are expected, too. We have been following the travels of a number of VK girls through the Travellers' Net for some time. Once all the 'flyers' and 'bussers' have arrived it will be a talkfest as well as a hamfest. There will be much to tell in the next ALARA column.

The 222 net

The girls who regularly join in the Monday afternoon YL net on 14.222 tell me the girls from G-land have been heard frequently in recent weeks. There have been some DL callsigns and at least one from Portugal. If you are after some DX stations listen around. We are very grateful to Dave ZL1AMN who runs the net so efficiently.

October is JOTA month

If you are asked by a Guide or Scout group to help them set up a station for JOTA, please help if you can. In every state there are amateurs who had their first taste of radio at a JOTA station. These days with the prevalence of computers and the easy access to the Internet fewer young people are interested in making the effort required to pass the amateur exam.

This means that in years to come we may find the numbers of amateurs falling to such an extent that we could lose the access to some of the bands we now enjoy, due to lack of usage.

That would be a disaster for the hobby and potentially a disaster for communications in the event of disasters like earthquakes and hurricanes. We all know of occasions where the amateur with his battery operated equipment has been a lifeline to the emergency services.

By running a JOTA station you may be instrumental in introducing a young person to the wonderful world of amateur radio - and you may even have fun yourself!

At the time of writing I have not yet been contacted by the groups, so it is difficult to tell you what callsigns to listen out for. However there are a few I expect to be on the air.

VK5AMD, Mary, will have some Brownies and Guides in her shack, and maybe some Scouts as well. There will be a station at Woodside operating VK5BP and another at Yundi operating VK5KR. I have no doubt there will be similar stations in the other states where there are regular JOTA camps. This year a few of the usual YL operators will be away from home for the ALARA-Meet, but hopefully they have arranged for other amateurs to fill their places.

The Girl Guide station, VK5GGA, at Douglas Scrub will probably be used but I hope you also hear and contact them earlier, during the school holidays when they are running a State Camp with the theme of communications. They will be using many different modes of communication during this camp so you could 'hear' them on RTTY or packet or CW or voice. Listen for them and give them some contacts please.

A garden full of flowers

Some months ago on the Monday Nets Judy VK3AGC surprised us when she told us her OM Mike had been given some seedlings - seven TRAYS of seedlings, with about a dozen punnets in each - which he was madly planting.

For the next few weeks we heard how many were planted or how many trays still to go. Well now they are all coming onto flower. Judy has flowers in the most unexpected places. Every day she finds more patches of colour. Let's hope some of the flowers are perennials so that they throw their seeds and come up again next year. Judy says she doubts that they will ever again be given so many plants.

Can you just imagine finding somewhere to plant 84 punnets of seedlings. It always seems a shame to waste them, but that is ridiculous! Definitely a colourful garden. Maybe we'll have a photo in this column sometime.

A new callsign in VK5

Jeanne VK5JQ, previously VK5HOQ joined us at the Birthday Luncheon in July and the last monthly luncheon in the city and has been on the Monday Net a couple of times. Jeanne has been working toward her licence for some years but having a couple of children in the middle of her studies made it a slow process.

With the children a little older, now Jeanne started doing some Adult Education classes a number of years ago. One year when the group was discussing what they would like to do next year Jeanne said she had always wanted to get her amateur licence, what did the others think? Immediately it turned out there was another lady who had always thought she would do the same, one day, and another who was interested, too. The teacher even thought he might go all the way, as well. (Full Call?)

Well, Jeanne is now VK5JQ and Betty is VK5ZLU. Subsequently the group has set up a station at their school and done a course on amplifiers, followed by one on receivers during which they built the appropriate units. Now they are studying transmitters. Good Luck to all concerned.

ar

SNIPPITS

During the 1974 Australia Day Floods in Queensland, the main Brisbane water treatment plant was totally cut off from the Brisbane City Council. The only communication that could be established was via Amateur Radio. Dave Hutchins VK4HW and Ron Grandison VK4RG, who worked at the Mount Crosby Water Treatment Plant, and several others at various points in between Mount Crosby and Brisbane, relayed vital river level readings and other information to the Council Engineers in Brisbane. Without their valuable assistance Brisbane may have suffered even higher water levels as these readings formed part of the feedback system controlling the release of flood water from Somerset Dam.

50 People We Should Thank

by Bill Rice VK3ABP and Bob Harper VK4KNH

This is a follow up on an item in August AR (p5) inviting readers to remember contributions made by a list of 50 famous and not-so-well-known people who helped shape our hobby. They are listed here in alphabetical order.

Surname	Other Names	Contribution
Ampere	Andre Marie	Early electrical experiments including the measurement of current.
Armstrong	Edwin Howard	Armstrong Oscillator, Super-Heterodyne Receiver and FM and many more.
Ayrton	WE	With Perry, invented the portable ammeter and the Ayrton Shunt.
Bardeen	John	Co-inventor of the Transistor with Brattain and Shockley, 1948.
Baudot	Emile	Invented the Baudot Telegraph Transmitter/ Receiver.
Bell	Alexander Graham	Invented the Telephone.
Brattain	Walter Hauser	Co-inventor of the Transistor with Bardeen and Shockley, 1948.
Cooke	William Fothergill	Introduced Telegraphy into England with Wheatstone.
Cunaeus		Discovered the Leyden Jar effect the hard way!
D'Arsonval		Moving-coil Meter Movements.
De Forest	Lee	Added the control grid to the Fleming Diode to form an Amplifying Triode.
Edison	Thomas Alva	Numerous inventions including Gramophone and Light Bulb.
Faraday	Michael	Numerous contributions to understanding the physics of electricity.
Fleming	John Ambrose	Used the Edison effect in inventing the Diode Valve, Fleming's Right Hand Rule.
Franklin	Benjamin	Experiments that proved that Lightning was a form of electricity.
Franklin(2)		Franklin Antenna - Co-linear vertical array of many phased half-wavelengths.
Gauss	Johan Carl Friedrich	With Weber established the first working Telegraph. Unit of electromagnetic fields named after him.
Gramme	Zenobe Theophile	Invented the Commutator and Gramme Ring Armature.
Gray	Stephen	Discovered the concept of Conductors and Insulators, experimented with static electricity. Transmitted a discharge from a Leyden Jar across the Thames.
Gray(2)	Elisha	Telegraphy, Western Electric
Hayes	Dennis	Established a universal system of command codes for the control of Modems.
Heaviside	Oliver	Electromagnetic and Propagation Theories, Rationalised MKS System.
Hertz	Heinrich Rudolf	First known transmission of Electricity between Tuned Circuits.
Hughes	David Edward	Early RTTY Machine as well as a Microphone and Oscillograph.
Jansky	Karl Guthe	Discovered "Background Radiation of the Universe" (Radio Astronomy)
Kelvin	(Lord) Born William Thomson	Made many discoveries and contributions including Telegraphy machines, Atlantic Undersea Cable and Mirror Galvanometer.
Leclanche	Georges	Electric Accumulator Cells including the "Dry Cell"
Marconi	Guglielmo	First use of Radio Waves for Telegraphy. Experiments in long distance Wireless Telegraphy.
Maxwell	James Clerk	Electromagnetic Theory and a system of Equations.
Morse	Samuel Finley Breese	Telegraphy Sounders, attributed with defining the Morse code.
Moyes	Dr H.	Observed Carbon arc noting a light source and proving electricity can flow in air.
Norton	K.A.	Norton's Theorem of circuit analysis uses a current source and shunt resistor.
Oersted	Hans Christian	Discovered Electromagnetism and experimented with the physics of EM.
Ohm	Georg Simon	Discovered the relationship between current and voltage in a material, and measured the material property known as Resistance. Ohm's Law.
Plante	Gaston	Invented and refined the Lead-Acid Cell
Preece	William Henry	Experimented with Wireless Telegraphy using the Earth as the conducting Medium.
Reber	Grote	Made first radio sky maps and applied the Parabolic Dish to Radio as a Receiving Telescope.
Rutherford	Ernest	Radiation Physics including High-sensitivity Electromagnetic Detectors.
Schering		Schering Bridge used to measure Capacitance and dielectric losses.
Schmitt		The Schmitt Trigger circuit uses Hysteresis to avoid switching "chatter".
Schottky		Invented the Metal-Semiconductor Junction (Hot Carrier) Diode.
Shockley	William Bradford	Co-inventor of the Transistor with Bardeen and Shockley, 1948.
Siemens	Charles William	Invented amongst other items a Dynamo and polarised relay. Formed Siemans Electric Company.
Swan	Joseph Wilson	Electric Light Globe and a system of Urban Electricity Distribution.
Tesla	Nikola	Many discoveries relating to AC electricity. Proposed AC for electricity distribution.
Thevenin		Thevenin's Theorem of circuit analysis uses a voltage source and series resistor.
Thomson	Elihu	Invented Watt-hour meters and other electricity distribution instruments.
Thomson(2)	(Sir) William	Many contributions - see Lord Kelvin above.
Volta	Alessandro	Primary battery - Volta's Pile - the unit of Potential, Volt.
Watt	James	External Condenser and Automatic Valve Gear enabled his Rotating Steam Engine to provide mechanical energy to drive generators.
Weber	Wilhelm Edward	Invented the Electro-dynamometer, made measurements of Electromagnetic Fields.
Wheatstone	Charles	Known for the Wheatstone Bridge but also invented the Direct Reading Telegraph, Telegraph Relay and the Automatic Telegraph Transmitter.
Wilde(not Wild)		?Invented the Self-exciting Dynamo that needed no external current to field coils.
Woolrich		Invented a Magneto for use as a current source in commercial electroplating baths.

So there they are. Sources of the information were the *Cambridge Biographical Encyclopedia* and the *Encyclopedia Britannica*. The names were originally taken from the *Radio Shack Dictionary of Electronics* and *A History of Electrical Engineering* by Percy Dunsheath.

Preparing for JOTA

Christine Taylor VK5CTY

Many amateurs open their shacks for JOTA or take their equipment to the local Scout Hall. Both they and the scouts, cubs, and guides will have a great time. However, the benefit gained from the experience can be increased with a little preparation.

If the scout group with which you spend JOTA is well organised or have participated before they will have a program prepared. This may include activity sheets for the Guides and Scouts to complete or they may plan to have a number of 'stations' set up to ensure that all the children participate in all the aspects of amateur radio on offer.

Not all scout groups are as well prepared as this, so here are some of the ideas we and others have used in previous years that you might find useful, too.

As any child-minder knows -the trouble begins with idle hands so the secret to a successful JOTA is keep them busy and keep them interested.

Have charts of Morse Code and the phonetic alphabet available. The children not actually talking can find out what their names are in these two languages it gives them something to do. They can either write down their names (or the names of their cats, dogs, etc) or they can send their names to each other with a Morse key and an oscillator.

A map of the World and one of Australia are useful so the children can know where the person they are talking to (or hearing) lives. If the map has a list of DX callsigns it is even better and provides something else to talk about.

Many amateurs participating in JOTA have a portable packet system that will provide hours of fun and be very popular with the children (though the system can become rather overloaded at times). Even if you cannot offer connections to the packet system it is not difficult to rig up a couple of computers hard-wired together so the children can 'talk' to each other that way. All that is needed is a null-modem and a cable.

If you are an ATV buff you can arrange a similar set-up. A TV camera on top of a TV provides an electronic mirror while two television cameras 'looking' at each other and wired to two monitors is very popular. We all seem to like to see ourselves making silly faces into a camera. If you can actually tap into the ATV repeater scouts can see scouts in other troops that way.

If you are likely to have just one group of scouts for the whole time it is a good idea if you can arrange for them to put together a simple circuit, maybe a sounder they can key or a LED they can switch on and off. Depending on the time and cost a very simple FM mike can be made with which they can 'talk' to each other through a Walkman type radio. If the kits are made up so they can be laid out on a piece of cardboard with holes in the appropriate places the children can 'do it all themselves' with only a little help.

Photo 1 Guides getting practice on the Mike -off air.

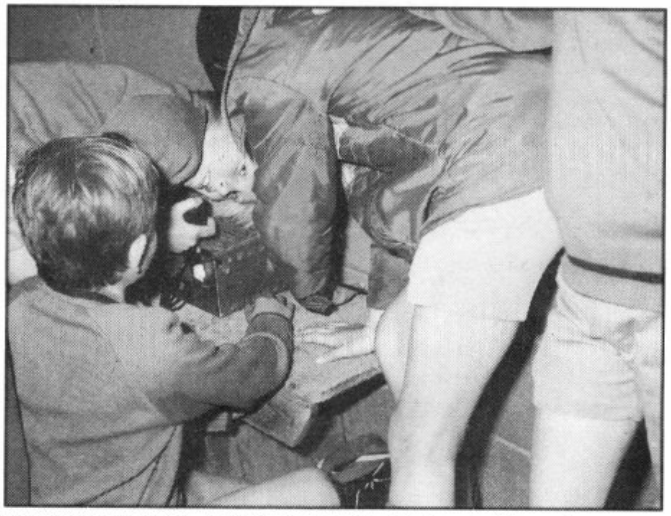

Photo 2 Scouts bearing down on a weak and noisy signal.

Photo 3 Surprise -you're on air!

Photo 4 The all-important briefing.

Obviously if you plan to make many preparations you will be best off to have the cooperation of the leader, and, in any case you should discuss with them what you plan to do altogether. If you are lucky enough to have a really interested leader in your district together you can do wonders.

It is absolutely essential that the children have some idea what to expect from a JOTA weekend. They need to have some practice at holding a microphone in their hands and talking into it. They should have some questions to ask and they should have some answers prepared for the questions they are likely to be asked.

Many amateurs, not able to run a station for the scouts are willing to talk to them from home but that can be hard work if the responses are all just giggles.

Ideally you should try to take some gear down to the scout hall sometime in the previous weeks and give everyone a practice session. Around Adelaide this has been done frequently since the 70s and 80s and in the last few years, particularly for the Guides, under the leadership of Jenny Housden.

Usually 2-metres is used, though sometimes where it is possible to put up HF aerials, 80-metres has been used. These sessions are enough to introduce microphone technique and teach some communication skills. After such an evening both the leaders and the children have a better idea of what happens during a JOTA weekend. When the actual weekend comes it will all go much more predictably.

If the Scout Group who contacts you have a campsite the situation is rather different. In South Australia there is a large scout camp at Woodhouse, and another one for guides at Douglas Scrub.

Both of these are utilised for JOTA with several groups camping there for the whole weekend and others visiting for a few hours at a time. Black Forest Scout Group has a regular JOTA station at Yundi and certainly many others, in VK5 and the other States have campsites.

At such a campsite either there is permanent radio equipment or a permanent antenna with the equipment brought in for the occasion. Some campsites are connected to electricity, some others bring along generator sets for the weekend. The important similarity is that they all make available to other groups the opportunity to share the facilities which increases the fun for all.

Permanent or regular arrangements usually also have a full program of camping and radio activities for the children to complete sometimes including projects for them to make. All leading to a busy and enjoyable weekend for everyone.

If you are taking your amateur station to a scout hall or to a campsite you need to make sure everything you are likely to need is packed together, including all cables and connectors. It is a good idea to have a spare extension cord and distribution board with you. The power point never seems to be in

Photo 5 Don VK5ADD at the helm.

Photo 6 Don VK5ADD on site at a Scout Hall.

Photo 7 Greg VK5FK lining up some scheds beforehand

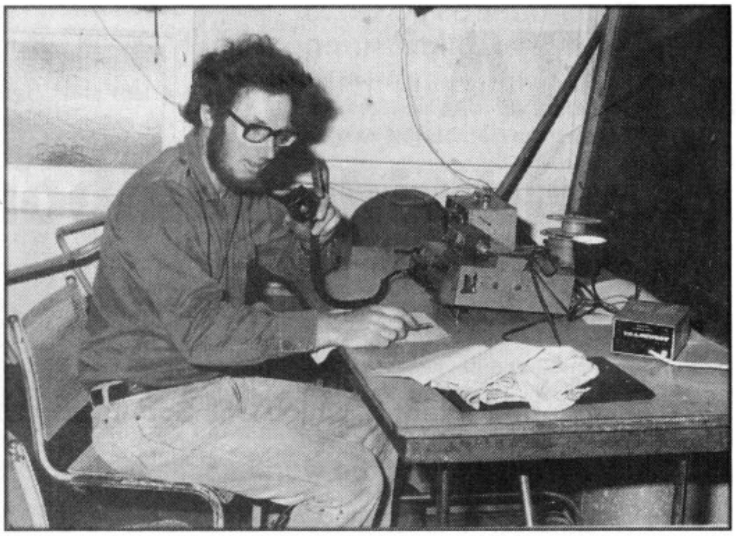

Photo 8 VK5YO operating from Yundi Scout Park.

the right place and there is usually one less powerpoint than required.

It is probably best if you can run all the equipment you will be taking, as a complete station, before the event to make sure it is all ready to go. This will minimise last minute hitches.

If more than one amateur is providing equipment make sure, beforehand, that it is all compatible.

It is as well to have had a look at the hall you will be using so you know where and how you will be able to erect masts and string aerials, and so you know how long the aerial cables will need to be. Consider setting up the antenna and having a practice go on the regular Guide/Scout meeting night previous to the event.

This is just as critical for a campsite though you will probably expect to need long cables there.

Remember –Be Prepared!

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EDUCATION

Brenda M Edmonds VK3KT
PO Box 445, BLACKBURN VIC 3130.

On a number of occasions lately I have heard of complaints about the standard of service of WIA Exams Service. Although I am not directly involved in the management of this service, there are a few points I can make to try to ease the situation for all concerned.

Many of the complaints relate to the time taken to get materials or results from the Federal Office. Please be aware that, due to severe pruning of the staff of the office, two people are now doing almost all the work that was previously done by five.

The Examination Officer works only three days per week, and not all that time is on examinations. Field examiners here can help considerably by putting orders in as early as possible. Please get the order to the office at least a fortnight before the due date of the examination.

That way, orders can be processed in the most efficient manner. Where possible, try for larger events. Small orders are time expensive to process. A bundle of Theory and Regs papers can be processed in little more time than a single receiving tape. Remember too that postal handling takes up more time than we tend to expect. Allow a couple of days extra each way to be sure.

Many field staff have at times had a batch of papers held up because of incompleted paperwork. Perhaps a form has to be returned for signature, or candidate identification has not been completed. This all takes staff time, and delays the distribution of results.

Examiners can help by checking that procedures as specified in the handbook are completed at the proper time - eg the identification of candidates must be completed at the time of the examination - that all signatures required are complete, tapes rewound, number of candidates filled in, and non-attenders listed. Most of these are minor points, but they make the difference between a batch that proceeds smoothly and with maximum efficiency and one that has to be held up.

As I said, these are minor points. However, remember that the WIA is acting as an agent for the ACA, and is accountable to that body. There are some procedures that are specified by the ACA, and cannot be modified. The WIA is subject to audit at the ACA's discretion, and the ACA is the ultimate authority in any disagreement.

Despite any complaints, we have an efficient, effective examination system which provides good service to the majority of candidates. Some of us can remember when examinations were held only twice a year, at only a few locations and results took up to three months to arrive. We ask only that field staff be aware of the constraints and cooperate to make the system work at its best.

Thank-you.

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JOTA

(Worldwide Jamboree On The Air)

Scouting on the Air
World Organisation of the Scout Movement, Geneva Switzerland
worldbureau@world.scout.org

JOTA is an annual event in which Boy Scouts and Girl Scouts and Guides from all over the world speak to each other by means of Amateur Radio.

JOTA is a worldwide event. Units may operate for 48 hours, from Saturday 00.00 h until Sunday 2400H local time. Due to the world's time differences, this period is not the same for everyone. To determine the times at which you can most likely contact a certain part of the world, calculate a time difference and ask your amateur radio operator about the radio propagation prediction (a sort of weather forecast for radio waves).

Any authorised frequency may be used to establish a contact. Just call "CQ JAMBOREE", or answer Scout stations who are calling to establish a contact. National radio regulations must be strictly observed (in most countries, a licensed amateur radio operator must be present and a logbook must be held). To find each other easily, listen on the agreed World Scout Frequencies listed below.

World Federation of Great Towers

The World Federation of Great Towers (WFGT) is an organisation in which large towers all over the world cooperate for special activities. It was founded in 1989 with the aim to stimulate communication and exchanges of all sorts between the people of the world.

The WFGT invites Scouts to take part in the JOTA from the top of their Towers. Amateur radio stations will be installed on the towers and professional communication facilities to contact the other towers will be made available also.

The following towers are expected to take part: Centrepoint Tower in Sydney (Australia), Donauturm in Vienna (Austria), CN Tower in Toronto (Canada), Empire State Building in New York (USA), Tour Eiffel in Paris (France), Euromast in Rotterdam (Netherlands), Ostankino Tower in Moscow (Russia), Blackpool Tower in Blackpool (United Kingdom) and British Telecom Tower in London (United Kingdom).

Some of these stations may use special call signs as well. It is usually planned to establish a television link between New York, Paris and Moscow at some time during the weekend. This will make it possible for the Scouts at those towers to have a forum discussion. Further details are not yet known, but can be obtained from the World Bureau's radio station HB9S during the JOTA.

42nd World Scout Jamboree-On-The-Air (JOTA)

World Organisation of the Scout Movement, Geneva Switzerland worldbureau@world.scout.org

16-17 October 1999

The following text is extracted from Circulars 12/99 of the World Scout Bureau, Geneva Switzerland. (Distributed in July to all national Scout organisations, and national JOTA coordinators.) Email: JOTA@world.scout.org

If there is any last-minute information of general interest, it will be distributed electronically. Check the SCOUTS@WW directory of your local packet-radio BBS and this site.

Jamboree on the Internet will be held on the same weekend as JOTA. JOTA and JOTI should be conducted together when possible. For questions on the Jamboree on the Internet send E-mail to: JOTI@world.scout.org

Updated 2 July 1999

1. What is the Jamboree-On-The-Air?

The JOTA is an annual event in which about 500,000 Scouts and Guides all over the world make contact with each other by means of amateur radio. It is a real Jamboree during which Scouting experiences are exchanged and ideas are shared, thus contributing to the world brotherhood of Scouting.

The JOTA is a worldwide event. Units may operate for 48 hours or any part thereof, from Saturday 0000H until Sunday 2400H local time.

Members of the World Association of Girl Guides and Girl Scouts (WAGGGS) are invited to take part in the JOTA and enjoy this international event together with the Scouts.

2. How to take part

To take part in the JOTA requires the help of a licensed amateur radio operator. Such a person can easily be found via the national amateur radio organisation in your country. Every country where Scouting exists has such an organisation, Radio amateurs throughout the world are very keen on helping Scouts to take part in the JOTA.

How to proceed:

a) visit an amateur radio station with your Scout group or invite a radio amateur to install his station in your Scout building;

b) call "CQ Jamboree" or answer Scout stations calling to establish a contact;

c) all radio stations must strictly observe the national amateur radio regulations;

d) any authorised frequency may be used. It is recommended that stations use the agreed World Scout Frequencies or frequencies close by to find each other.

All participating groups are asked to send a report of their activities to their National JOTA Organizer (NJO) after the event. It is of particular importance to make good photographs that can be used in the World Report of the event. Ask the help of a Scout photographer at your station.

NJOs are requested to send a National JOTA Report to the World Scout Bureau, for inclusion in the World Report of the JOTA. Photos in .jpg format are welcome. (Please not over about 100K!) We will ask you for higher resolution if needed for publication.

3. HB9S will operate from Geneva

The radio station of the World Scout Bureau, HB9S, will be on the air from the World Scout Bureau in Geneva, Switzerland. The operator team will consist of station manager, Yves Margot, HB9AOF, Richard Middelkoop, PA3BAR, World Bureau staff members and an international team of Scout radio amateurs.

Experienced Scout radio amateurs who would like to assist the operator team are welcome to contact the station manager and ask him for a place on the team. Prerequisites are: experience in operating a busy amateur radio station, holding a licence for short-wave amateur radio, a working knowledge of the English or French language, and willingness to travel to Geneva.

4. World Scout Frequencies:

Band	SSB (phone)	CW (Morse)
80 m	3.740 & 3.940 MHz	3.590 MHz
40 m	7.090 MHz	7.030 MHz
20 m	14.290 MHz	14.070 MHz
17 m	18.140 MHz	18.080 MHz
15 m	21.360 MHz	21.140 MHz
12 m	24.960 MHz	24.910 MHz
10 m	28.390 MHz (new)	28.190 MHz

Please note that Circular 12/99 contained an error for the 15m frequency: 21.360 is correct.

New frequency!! Note that we have a New World Scout Frequency on the 10-m band. As of this year the official frequency is: 28.390 MHz. Please change your JOTA information.

This change was requested by many Associations, since the lower part of the 10-m band is more active and the old frequency was in a very quiet part of the band. With this change we trust that it is easier to find Scout stations and others – particularly now that propagation conditions are constantly improving due to the new solar cycle.

5. Kit-contest

Constructing small electronic circuits has become a popular side activity during the JOTA. We know many countries are designing Scout electronic kits for this. If you are among those, here's a challenge...

The 42nd JOTA will have a kit building contest. You can compete for the best designed kit. The winner will be published in the World JOTA Report and its designer will receive a prize. Send your design on paper together with your national JOTA report before 31 December 1999 to the World Scout Bureau in Geneva.

The rules are simple:

- the design must include a printed circuit layout, a component overview, the circuit diagram, and building instructions.
- each kit may contain up to 20 components, maximum.
- building instructions may be 1 page maximum, in English.
- Scouts from 10 years of age onwards must be able to build it themselves in about 1 hour.
- it operates from a standard 9 V battery.
- the design must be free of copyrights; it cannot be copied out of some electronics magazine.
- mark the name, Scout group and address of the designer on the papers.
- your entry must be received in Geneva by 31 December 1999. An independent jury will judge the entries and decide on the winner.

6. JOTA communication game: millennium mission

An exciting game entitled "The Millennium Adventure of John Bont" has been prepared by your world JOTA team for this last JOTA before year 2000. Download it, and photocopy it to share with your group. *(To be online soon.)*

7. Forthcoming camp contacts (non-JOTA but Scout Stations)

The following radio stations were known at the time of print to be expected to be operating from Scout summer camps.

26 Jun - 3 Jul LA2RR Follo 99 Rett, flott og vett, Follo district, Norway.

08 - 17 July SK6SS Future Venture 1999, Lysekill, Sweden.

July 6 V1S Jokkoo '99, 4000 participants, Mboro, Senegal.

24 Jul - 06 Aug PA6HJ Haarlem Jamborette, Halfweg, Netherlands.

31 Jul - 08 Aug 7S5T Trerixöset, 6000 participants, Olstorp, Sweden.

26 Jul - 06 Aug 9A1ACD Scout Marine Watch, 150 participants, Pula, Croatia.

01 - 08 August LA1SS Halnes district camp, Romerike, Hxland, Norway.

05 - 09 August JA1YSS 8th Nippon Agoonoree, 900 participants, Ehime, Japan.

14 - 15 August VR2EA Communicator Training Camp, 60 participants, Tai Tam Scout Centre, Hong Kong.

To easily find these stations, listen around the Scout frequencies. Scout stations in the European Region are asked to call CQ SCOUT daily during July and August for the "summer camp sked". You may also find additional information in the "SCOUTS" directory on packet-radio networks. European Summer Camp sked:
on 7.090 MHz at 07.00 GMT and
on 14.290 MHz at 07.30 GMT

The Italian Scout Organisation AGESCI issues a beautiful radio Scouting award this year. You will need to obtain QSL cards of contacts with 10 Italian Scout stations. Cost of the award is 15,000 Lire (Italian Lire). Applications can be sent to: Associazione Guide e Scouts Cattolici Italiani (AGESCI), Radio Scout Section, Piazza Pasquale Paoli 18, I-00186 Roma, Italia. Roma 2000

8. 5th European Radio-Scouting Seminar

From 11 till 14 May of the year 2000, the 5th European Radio-Scouting Seminar will take place in Rome, Italy. It will concentrate on communication means available to

Scouts and how these can best be used in the Scout program. Notably the use of digital communications as packet-radio networks and Internet will be discussed.

Presentations will be given by professional organisations. An excursion around Rome and to Vatican Radio is planned as well. The organisation is in the hands of the Italian NJO, Valerio Berti. He can be contacted by email at: radio@agesci.org or vberti@tin.it

The seminar is aimed at those leaders responsible at a national level for Radio-Scouting, Internet and communication technology. Further details will be mailed by the European Regional Office to all Scout Associations in the European Region as soon as they are available.

9. JOTA Support Tools

A second JOTA circular will be sent to all National Scout Associations and National JOTA Organisers late August with the latest details and information. You will also receive the JOTA /JOTI participation cards for participating Scout groups in your country.

The text of these JOTA circulars is also down-loaded to packet radio mailboxes at regular times. Check the "Scouts@ww" section in your local mailbox.

Latest details can always be found on our web server: www.scout.org/jota

You can also obtain the following JOTA information from Scout Resources International (SCORE):

- JOTA, how to take part in this annual activity; in English, French, Spanish or Russian.
- The JOTA story, a history of the first 35 years, by Len Jarrett, in English (while stock lasts).
- The Radio Scouting Badge.
- The Radio Scouting Lapel Pin (Official JOTA pin).
- The Radio Scouting (JOTA) Car Emblem.
- The World JOTA Report of the 41st JOTA which contains statistical information on the JOTA participation, activity reports from more than 40 countries, a selection of newspaper articles and new program ideas. The report is in English, with French and Spanish summaries.

42nd JOTA Participation Card
(to be up-loaded soon)

10. National JOTA Reports

JOTA organisers are requested to send a report to the World Scout Bureau soon after the event.

The World Bureau is very much interested to get an impression of what the JOTA was like in your country. Please put your ideas and comments, suggestions for future programs and description of the most important and interesting contacts that were made in your National JOTA report. A summary of it will be published in the World JOTA Report, of which each NJO and Scout Association will receive a copy. The figures that are requested on the report form will be used to compile some statistics. A reasonable estimate would be appreciated if they cannot be specified accurately. Please feel free to include any other information on separate papers.

Since the JOTA is not a competition, you do not need to send a copy of the radio logbook showing every contact you made. We do appreciate to read your description of the most interesting contacts you made. Photographs are especially appreciated. Photos, showing Scouts in uniform at the microphone and of other activities like electronic kit building, foxhunting, semaphore, map plotting and the like are most welcome. How about the self-constructed masts and antennas or a station set up at an unusual location? We're curious to see them.

The World Report editor would very much appreciate it if you could send any additional report text in English on a computer disk or via email. You may use any MS-DOS or Macintosh formatted disk with the text in ASCII format or formatted according to any popular word processor. Alternatively, you may use electronic mail and send your file to:

JOTA@world.scout.org. Clearly mention "JOTA Report" in the subject line.

In any case, send your report to the World Scout Bureau before the 31st of December 1999!!

Information, dates and time for both JOTA and JOTI (Jamboree on the Internet) can be found at:

http://www.scout.org/

Amateur Radio would also be pleased to receive JOTA reports, pictures and articles that will be passed along to the Australian Scouting Movement.

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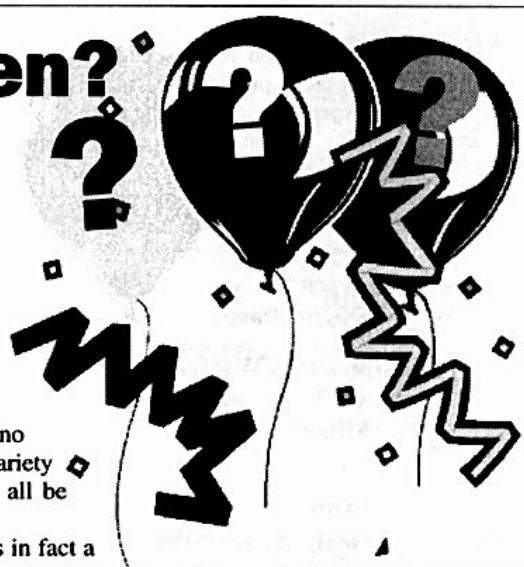
90th Birthday — when?

Since mentioning that next year will be the 90th birthday of the WIA thequestion arose - when is the actual birthday?



According to the WIA Book Vol 1, the NSW Wireless Institute was formed on the11th March 1910 closely followed by Victoria and then Queensland.

Perhaps 11th March each year should become the WIA Day and be a focus for all divisions and clubs on advertising the WIA, Amateur Radio in general, and gaining new memberships.

It is perhaps a time to recount all that the WIA has achieved on behalf of itsmembers and non-member amateurs as well.

Why not plan a special birthday present to the WIA that will benefit all amateurs.

If each of us found one new member, not only would our numbers swell but the fees would most likely drop. The added number of members would no doubt increase the content and variety of articles ofAR and we would all be better off.

The eleventh of March 2000 is in fact a Saturday. Can you imagine a party involving all of the members and their families held at club rooms and halls across Australia, perhaps forming one big party by a hookup/net on twenty metres. Can it be done? Why not? Please send your thoughts to AR and let's see how the WIAcelebrates 90 years.

Let's party!

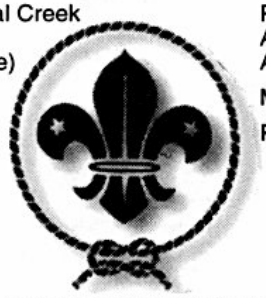
JOTA Callsigns in Queensland

Stephen Watson VK4SGW
Scout JOTA Co-ordinator for QLD

The following are temporary QLD Scout callsigns authorised by ACA for JOTA, 16-17 OCT 99.

Permanent allocations have also been included.

Callsign	Identity	Proposed Location	Amateur Operator/s
VK4SAA	QLD Branch HQ	BP Park Samford	Permanent allocation
VK4SAB	Nanango	Hazeldean Campsite, Nanango	Trevor Clement VK4YH, John Tucker
VK4WJT	Port Curtis District	Awoonga Dam Campsite	Tom Newton VK4BTN VK4SAC
VK4SAD	Lowood	Lowood	Permanent allocation
VK4SAI	Limestone/Flinders	Allawah Rd, Mt Crosby District	Ken Page VK4AKP, Peter Davies VK4KJP
VK4SAR	Pioneer Park/	Hervey Range (west of Townsville) 'Rangeview Ranch',	Don Terrace VK4MC Alice River
VK4SAW	Woodford	Canadoo St Woodford	A.J. Chappel VK4DY, Udo Von Kujawa VK4DLA
VK4SBB	Boondall	'Brownsea', Shorncliff, Brisbane	ASL Geoff Robinson VK4KJJ
VK4SBC	Bowen	Lascelles St, Merrinda, Bowen	Craig Hampson VK4CWH
VK4SBD	Bundaberg	Bundaberg	Permanent allocation
VK4SBP	Biloela 'Camp Illawong',	Lake Callide, Biloela	Jim Grimes VK4OK, Mark Haseman VK4CMH
VK4SBG	Belgian Gardens	Belgian Gardens Scout Den	Roger Cordukes VK4CD (Townsville)
VK4SBS	1st Sarina,	Sarina	Permanent allocation
VK4SBW	Bluewater	Bluewater Scout Den	Iain Morrison VK4IGM, Sheila Morrison (north of Townsville)
VK4SCC	D'agular District	Rogers St, Beachmere	Mark Van Laecke VK4VG
VK4SCL	Logan City District	Meakin Park, Kingston	Brian Davies VK4AED
VK4SCM	Malanda	Ann St, Malanda	Aubrey McKibben VK4AFO, Wayne Richter VK4ARW
VK4SCR	Rasmussen	Mountain View Lake Van Park,	Gavin Reibelt (Og) VK4ZZ Giru (south of Townsville)
VK4SCT	Richmond Hill	Charters Towers	Vincent C Skinner VK4NBS, Jeff Stinson VK4CCF
VK4SCW	Wulguru	Bowden Rd, Black River	Les Steel (Rusty) VK4ALS (west of Townsville)
VK4SDJ	Jimboomba	Jimboomba Den, Edelsten Rd, Jimboomba	ASL Tony Nuss (Goanna) VK4HTN David Young VK4PUP, Gary Scaff VK4UHF
VK4SDW	Kawana Iluka Ave,	Buddina	Alan Jefferey VK4OR
VK4SDY	Dalby/Yumborra	Scout Hut, Beck St, Dalby	Neil Holmes VK4NF
VK4SEP	Everton Park	Clontarf	Permanent allocation
VK4SMD	Murrumba District	Petrie	Permanent allocation
VK4SML	Manly	Manly	Permanent allocation
VK4SPP	Pioneer Park	Thuringowa Crystal Creek UCA Campsite (north of Townsville)	Permanent allocation ASL Bob Mann (Wallaby) VK4WJ ASL Stephen Watson (Magpie)
VK4SGW	Venturer		Michael Brooke-Taylor VK4HOT
VK4SRD	Rockhampton District	Rockhampton	Permanent allocation



Best wishes for JOTA, I look forward to your report.

A Surprise In Bali

Richard Cortis VK2XRC

In July 1999, my wife and I spent a couple of weeks holidaying and relaxing on the beach at Sanur in Bali, Indonesia.

As I believe there is no reciprocal amateur licensing agreement between Australia and Indonesia, my only thoughts for amateur radio were to read a few a few magazines on the beach.

One evening, whilst shopping for minor gifts for family and friends, we wandered into a shop owned by Made who introduced himself using his nickname, Yogi. In the usual manner I was given his business card and advised that he could provide transport at a very competitive price. On completing our purchase, we left the shop and I politely put the card in my pocket.

The next day, whilst going through all the accumulated paraphernalia of business cards etc, I came across Yogi's card and noticed the amateur call sign YD9CKY and the radio club logo. My curiosity was aroused and, being on holidays, I had the time to wander around and say hello the next day. Yogi took me into his family's Balinese style house behind the shop. Balinese houses look inwards to a central courtyard rather than outwards.

Yogi made me welcome in his house, made me a Bali Coffee and showed me his two-metre hand held and two metre mobile radios. Yogi said that he could only use the hand held because his station antenna had been damaged.

As he did not appear to have a substantial tool kit, I returned to the hotel and collected my touring tool kit which consisted of a tiny pair of pliers, a couple of small screwdrivers, a piece of hacksaw blade and a Swiss army knife. After a couple of hours we had fashioned a suitable antenna and Yogi found a piece of steel pipe which we used to elevate the antenna off a timber post on the corner of the building. All seemed to work OK and successful contacts were made.

Later on, Yogi introduced me to Wayan, YC9FLE. The local Denpasar radio club has the call sign YC9ZAI.

I met Yogi several more times in his commercial capacity as a tourist driver and I must say it was very pleasant to have someone as a driver that I knew was not going to take me to his brother's shop.

I was quite surprised and in fact delighted to discover amateur radio in Indonesia. The opportunity to visit a local family as a friend and guest was rare and welcome.

It provided substantial insight into the day to day workings of a typical Balinese extended family. Who knows? If there is a relaxation in the political climate, reciprocal licensing may become a reality. The prospect is exciting.

(While visiting Indonesia some years ago the editor had the privilege of operating from YB2HTD in Solo, Java, at the licensee's invitation. A pleasant, if informal degree of reciprocity! Ed.)

ar

PANCA SARI SHOP

YD-9 CKY

I MADE PATRA. YOGI

TOURIST DRIVER
MOBILE PHONE : 0812 391 8103

Home Address :
Danau Tamblingan Street No. 10 Br. Sindu Kaja
Sanur - Bali - Indonesia
Phone : (0361) 281876

ORARI DAERAH IX BALI
LOKAL KOTA MADYA DENPASAR
Y C 9 Z A I
CALL FREQ. 145.150 MHz

ARDANA
car rental

YC9FLE

I WAYAN PURWITA
ENGLISH SPEAKING DRIVER

Office :
CV. ARDANA
Jl. Pantai Sindu No. 9
Sindu Sanur
Denpasar 80228
Bali - Indonesia
Phone : (0361) 287418

Home Address :
Jl. Pungutan Gg. V/9
Sindu Sanur
Denpasar 80228
Bali - Indonesia
Phone :

Do you know... ?

...that the First Australian Callbook was printed in 1914 by the Wireless Institute of Victoria? It contained an impressive list of 401 "Wireless Experimenters". The licence fee for experimenters was then one guinea. That's one pound, one shilling (£1/1/-), or 21 shillings from memory, equivalent to $2.10.

K2 Transceiver

Adrian (Ade) Hatherley - VK3LK.

Last year, my XYL and I turned the big 4-O. We decided that the ideal 4-O gift would be to pack the kids up and go for a trip to the U.S.

I had the opportunity to meet some of the lads from the internet I have "chatted" with for some time, the kids could go to Disneyland, and the XYL... well... would enjoy both.

So in the August of '98 it was off to NorCal and plenty of QRP/QRPp chit-chat... oh, and yeah –Mickey Mouse (the little rodent). Forgetting about the Disney thing, we arrived in San Francisco close to the home of NorCal, one of the most active gatherings of QRP enthusiasts in the world. QRP-Bob (Bob Dyer KD6VIO from Wilderness Radio) picked me up at the station and took me to a swap meet before the Norcal meeting. Believe me, I have never seen a swap meet like it. The things that were for sale were just unbelievable. Computer gear, test gear, antennae, bits and pieces like I have never seen before. If only I had a 40-foot container instead of the Qantas issue carry bag.

From the swap meet we went to the NorCal meeting, the highlight of the whole trip (for me anyway). NorCal meet at a hamburger store outside Livermore CA. The "meeting" is more a gathering of like-minded QRPers than a club meeting, very informal. There are NO minutes of the previous meeting or the formal guff that seems to drive most radio clubs. It is just a gathering of QRP enthusiasts, sharing their latest project or idea. Some of the more notable rigs to claim their roots from NorCal are the NorCal-40 and 40A, the Sierra, the 38 Special, the NorCal-20, and the St. Louis Special antenna.

Most of the people I had either read about or "spoken" to over the Internet were at the gathering. QRP-Bob introduced me to a lot of the members present, all of who had various projects on hand for show and tell. One of the operators present at the meeting was none other that Eric Swartz WA6HHQ from Elecraft. Elecraft is a small company created by Eric and Wayne (Wayne Burdick N6KR) located in Aptos CA. Eric had the new prototype rig (99.99% complete) called the K2 on hand for members to pock and prod. I was of course interested. First impressions count for a fair amount in my book, and this rig looked like the rig to take over from my QRP-Plus. Eric took about half an hour to go through the technical aspects of the rig, and I was sold.

Elecraft were after field testers to build the kit who had facilities in place to report assembly progress and any technical/ building problems that may arise back to Elecraft over the Internet. The idea being that most home-brewers would tinker, and perhaps come up with better ideas on some aspects of building process. Solutions might arise to problems that the less experienced builder might experience. In short, field testers would have to study all aspects of construction and report areas of concern and possible improvements. Total testers required for the "field test" would be 100, from around the U.S., Europe, Asia and NOW VK. (You little ripper!!!) I promptly ordered my rig and volunteered to be a field tester.

The K2 as a kit built rig, would definitely be one of those kits where you "READ" the manual before starting anything. It is a full-featured rig, with state of the art electronic components and printed circuit boards. The basic rig is CW only, however, options include SSB adaptor, Auto ATU (20W), Aux I/O (host computer interface), 160M option plus receiver antenna switch, Noise Blanker and internal rechargeable battery (2.5 or 3.0 AH from memory). Everything you need for serious QRP operation.

Now back in VK, I could only wait for the kit to arrive. An Internet reflector was set up by Elecraft for the field testers to chat amongst themselves or directly to Eric and Wayne about what they could expect from the K2 and their respective wish lists for a rig of this type.

Early March 1999 the kit arrived. I had planned all sorts of photos to be taken during the assembly, but as soon as I opened the box I was off, soldering iron in hand and itching to get it on air. (Officially there was not a race to complete the rig, but no one wanted to be last hi hi).

The kit arrived complete with all components, printed circuit boards (screen-printed, double sided with plated through holes) and hardware including alignment tools and special assembly tools. Special parts were separately bagged for easy identification. The assembly instructions are well laid out in a spiral bound manual, (purpose designed for small workbenches) and is probably the best assembly manual for this type kit I have ever seen. (Wayne obviously prides himself on the quality of the manual).

The manual is written in the step-by-step,

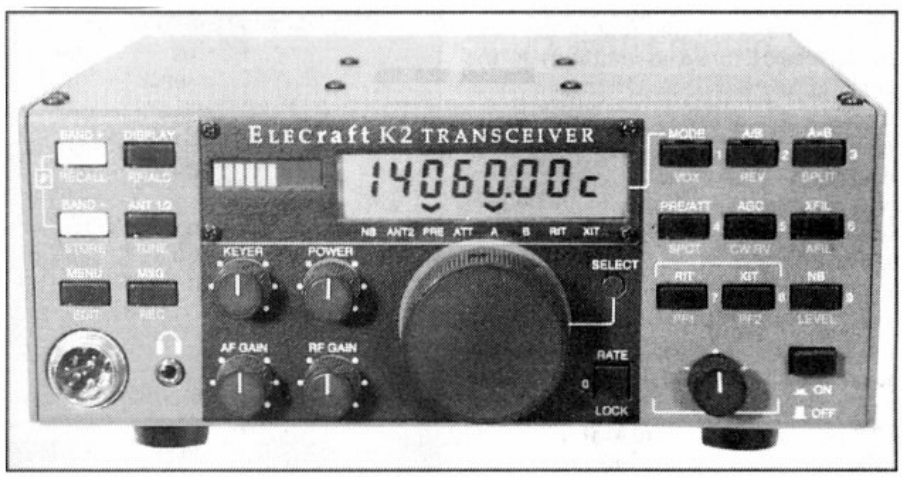


Photo 1

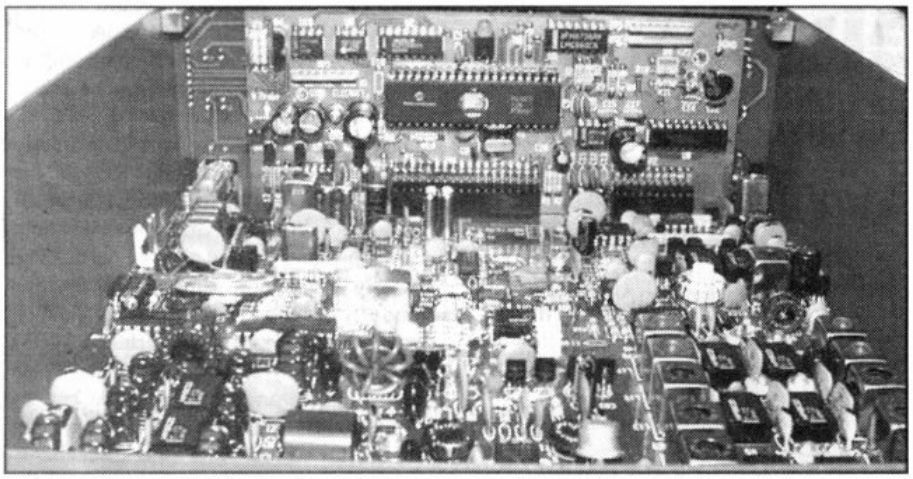


Photo 2

tick as you go approach, which in my opinion is great. It means that you can get to bed at a reasonable time after an evening of building, and the next day, pick up from where you finished the night before. The manual can also be down-loaded from the Elecraft web site, in Word for Windows format.

I found this particularly useful for finding components that did not appear to have a home. It saved hours of wading through the manual, all I had to do is turn on my computer, search for the component number, and up popped all the info required.

The kit is basically divided into six assembly stages.

- Control Board assembly
- Front Panel assembly
- RF Board assembly and test, part 1 (control circuits)
- RF Board assembly and test, part 2 (receiver and synthesizer)
- RF Board assembly and test, Part 3 (transmitter)
- Final assembly (enclosure, speaker etc)

The control board (the first of the three circuit boards to be assembled) is the "brain" of the K2. It monitors all signals during receive and transmit, and handles display and control functions via the front panel board. The microprocessor, analog and digital control circuits, automatic gain control, and audio amplifier are located on the control board. It took approximately 3 to 4 hours to assemble this board. As the first circuit board to be assembled, I took care to "get in sync" with the manual, and the general ideas behind the construction of the K2.

The second circuit board to be assembled is the front panel. This board incorporates all the control and display devices that are used when operating the K2, including the liquid crystal display, LED bar graph, push button switches, and potentiometers. (The user-interface elements are controlled by the microprocessor on the control board).

The final board to be assembled, and by far the most complex and densely populated, is the RF board. The majority of the receiver and transmitter circuits are located on the RF board, including filters, oscillators and RF amplifiers. The Control board and front panel plug into the RF board, and the enclosure chassis panels are designed to form a tight enclosure around the RF board, thereby securing the completed kit into a neat package.

Testing and alignment is performed at three stages during the assembly. In general, the most complex alignment stages are actually handled by the K2 itself. Routines within EEPROMS align the PLL, VCO/VFO, and the BFO. The user enters calibration commands via the menu button located on the front panel, and the K2 takes care of everything else. Again, the alignment process is very well documented in the manual and there is very little possibility of messing things up.

If a problem arises, the K2 issues INFO codes via the LCD. The codes are expanded in the manual, indicating the possible problem area, and actions to be investigated as a fix. The entire alignment process took approximately 2 hours to complete the first time.

Once the rig was up and going, there is always the urge to experiment (fiddle) with different parameters, and I was no exception. I can now align the entire rig in about half an hour with no problems. Some parameters can be modified or adjusted while operating, which again is a great feature. It is obviously a great advantage that the constructor does not require fancy test gear to get the K2 on the air.

The proof is in the pudding as they say, and the K2 was put to work on 40 metres. Not bad at all with contacts to ZL and the east coast of the US, from 5 watts out into a G5RV. Next band to be tested was 20 metres. First try to F6 received a 559. The receiver is incredible, with an adjustable band pass filter cutting out unwanted QRM.

Keyer speed is fully adjustable from the front panel, from 8 WPM to 50 WPM. The keyer rate is displayed as soon as the knob is touched. Power output is also adjustable from 1.0W to 10W via a front panel control. Again the output power is displayed as soon as the knob is touched. Other parameters can also be displayed while operating. For example, if the DISPLAY button is pressed, the input voltage and current can be monitored. This feature is handy when

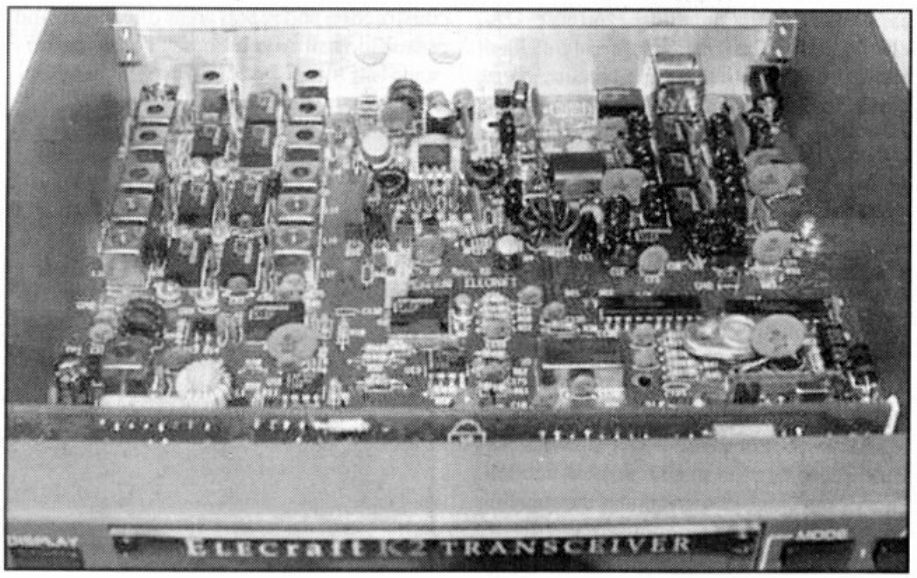


Photo 3

operating field day to monitor battery levels and VSWR levels during transmit. Various options can be turned off to conserve battery life while operating fields, without affecting the rig performance. For example, the S-Meter can be altered to a single LED display or even turned off, the LCD back light can be turned off, and if headphones are used in lieu of the internal speaker the overall power consumption on my unit goes down to about 200mA on receive.

Other features can also be switched in during normal operation. Sidetone pitch and volume can be adjusted via menu function, or stored for easier recall via the PF1 or PF2 (program function) push buttons on the front panel. Scanning is "programmed" by storing the lower frequency in VFO-A and the high frequency in VFO-B. Pressing the RECALL push button, the K2 activates all operating parameters set as the scan range was stored, the receiver is squelched and starts searching for CW signals within the scan range. As CW signals are received the squelch is turned off, and the CW signal "exposed" for 30 seconds. If the signal sounds "interesting" a tap of any button or a tap on the paddle will stop the scan function. The only draw back that I can see is, if the CW signal is not of interest, the scan function has to be started again. (Pressing the recall button, and starting at the lowest frequency in the stored range).

Apart from that, the K2 is everything you would expect, plus a bit more. As I'm not the world's best CW operator (I do enjoy it ... just not very good) I can hardly wait for the SSB option to be installed. To date, the only option to be released to the field testers is the Battery Option.

I have been told that the next option to be released is the 160-metre option, followed, hopefully by the SSB option some time late May 1999.

This kit is not a first time builder's kit, in fact, it is a reasonably complicated kit that demands a bit of experience and knowledge. The price tag, especially with the current exchange rate with the US, put this rig into the down on hands and knees begging the XYL category. Import Duty and Sales Tax may be tacked on as it enters the country, which once again, will require some breakfasts in bed and or vacuuming duties etc.

In summing up, the K2 is a superb little rig, and in my opinion the best QRP rig on the market. Elecraft after sales service is to say the least, exceptional. Both Wayne and Eric are very dedicated to this product. I was told on many occasions, that no field test will fail, meaning that they were both determined to see every kit complete and working to spec. I had problems with the VCO that was tracked down to a dead J310 FET. Within a week, two replacement FET's arrived. I also went a bit over the top with a TOKO variable inductor can, and accidentally shattered the ferrite core. Again Eric offered to send a replacement at no additional cost. Now if that's not customer support or what we would like customer support to be, I don't know what is.

If you are interested in more info on the K2 and have access to the Internet, have a look at the Elecraft home page at www.elecraft.com. or you can contact me via the callbook. Likewise, if you are interested in looking up Wilderness Radio, checkout Bob's web page at www.fix.net/~jparker/wilderness. Wilderness Radio sell the Norcal 40 and 40A, The Sierra and various other rigs that will be of interest.

Best 73 and Happy QRP'ing.

(Production Note:- Schematics were provided for inclusion but as they required 6 full pages it was decided to leave them out. They are however good quality schematics that are obviously professionally drawn and should indeed be easy to follow. Copies may be obtained from the Internet site mentioned in the article.)

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Radio and
Communications
Incorporating AMATEUR RADIO ACTION and CB ACTION

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The hand-held started life 60 years ago as a rather bulky piece of work with very limited capabilities. Not so these days! Pictured here is the latest Alinco, the DJ-V5, which boasts quite impressive capabilities. We check it out very thoroughly this month...

So what does our October issue hold in store for you? How about these...?

- MAKING THE BEST OF YOUR LOCATION — Antenna guru VK6VZ has some remarkable ideas...
- THE LAST PICTURES FROM MIR — The Mir station is deserted. Here are some final SSTV images.
- REVIEW: BARRETT 550 — If you spend time in the bush, then we have the HF transceiver for you!!
- FEEDBACK — our letters column is jumping. What do you think? You *need* to read this mail!
- KEPLERIAN ELEMENTS — Our monthly satellite column explains the Keps in simple English.
- *As usual, we have our DX columns, mods and lots more... the best stories and regulars every month!*

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vk3cu

Return Loss Bridge (RLB)

Ron Sanders VK2WB
PO Box 431
Kiama NSW 2533

A return loss bridge is a very simple piece of test gear, which is useful if you experiment with HF equipment and need to match impedances between components. It allows you to adjust your antenna system for best matching with very low levels of RF, unlike the normal SWR meter. This is particularly useful if you use an antenna tuner and wire antenna for multi-band operation, or want to adjust a beam for best SWR.

Return loss is related mathematically to reflection coefficient, which in turn is then related to VSWR. The bridge only indicates the magnitude of the reflection coefficient and does not show any phase angle. To use the 50-ohm bridge, it is necessary to have a 50-ohm RF source and a 50-ohm RF detector so that balance is retained. The test setup is indicated in Fig. 1.

The Bridge

The bridge circuit is shown in Fig. 2. Since 51-ohm 1% resistors are commonly available I have used them in the bridge, and any reference to 50 ohms can be read as 51 ohms. This circuit is similar to a normal bridge circuit. If T1 is removed and an RF detector is placed between points A and B, the bridge will be balanced when a 50 ohm resistor is connected at Rx. Alternatively, if Rx is open circuit (infinite resistance) the bridge will be at maximum unbalance.

Since most RF detectors use an unbalanced input (normally a coax connector) it is not possible to directly connect such a detector between points A and B, as one of these points would be grounded and the bridge could never balance. T1 provides effective isolation from points A and B at HF frequencies, so that an unbalanced detector will not upset the bridge. This type of transformer is sometimes referred to as a "sortabalun".

By providing 50-ohm attenuators (at least 10 dB) at the RF and the detector ports, the test setup requirements of 50-ohm sources are substantially met. In practice it is best to use a step attenuator between the output and the detector so that the bridge output signal can be adjusted for best indication.

This attenuator should be adjustable from 0 to at least 60 dB, but should be set at not less than 10 dB in this situation. Construction details for these attenuators are to be found in the ARRL and RSGB handbooks, the August AR and other publications.

One of the useful features of the return loss bridge is the relationship between the return loss and the value of Rx. Using purely resistive values of Rx the resultant VSWR is as shown in Table 1. As the value of Rx approaches the bridge impedance value of 50 ohms, the detector output approaches zero; ie maximum attenuation of the input signal.

I have shown values for equivalent VSWR of 1, 2, 3, 5, infinity. The change in return loss is greatest near balance (VSWR = 1:1) and smallest for high values of unbalance (VSWR > 2:1). The table in Fig. 2 lists how the VSWR is related to the return loss and clearly shows that the return loss changes are greatest as the VSWR approaches 1:1.

A 75 ohm bridge can be built using 75 ohm resistors and a 75 ohm RF source, detector and attenuators.

RF source and Detector

I used the RF source and detector provided with the YADDS Sweeper as it is calibrated in dBm (dB relative to 1 mW) which allows direct measurement of the return loss. Any signal generator capable of producing a signal on the desired frequencies will be adequate as an RF source and a receiver with an S-meter can be used as a detector. The results from using a dipper (GDO) as the RF source and a receiver S-meter as detector are shown later. If using a dipper (or any other unshielded RF source) the remainder of the test setup must be shielded to prevent direct pickup by the detector.

A simple test setup to calibrate the bridge

Since most amateurs will not have the YADDS sweeper the following simple setup can be used to calibrate the RLB.

Connect the equipment as shown in Fig.1.

If you are using a dipper as the RF source, make up a suitable coax lead with a single turn loop at one end to couple with the dipper coil. Provided you keep the arrangement physically fixed, the signal frequency and strength should be adequately stable. The 50-ohm attenuators shown in Fig. 1 must be retained in any test setup, since the RF input port and detector port of the RLB must be terminated in 50 ohms for correct operation. Shielding of all equipment must be retained to prevent any direct pickup of the source by the detector.

1. If you use your receiver as the detector make sure that the Rx port of the RLB is open circuit, align the dipper and receiver to the required frequency and adjust the step attenuator to achieve an S 9 reading.
2. Connect a 50-ohm termination to the Rx port. Note the S-meter reading. Depending on the calibration of your

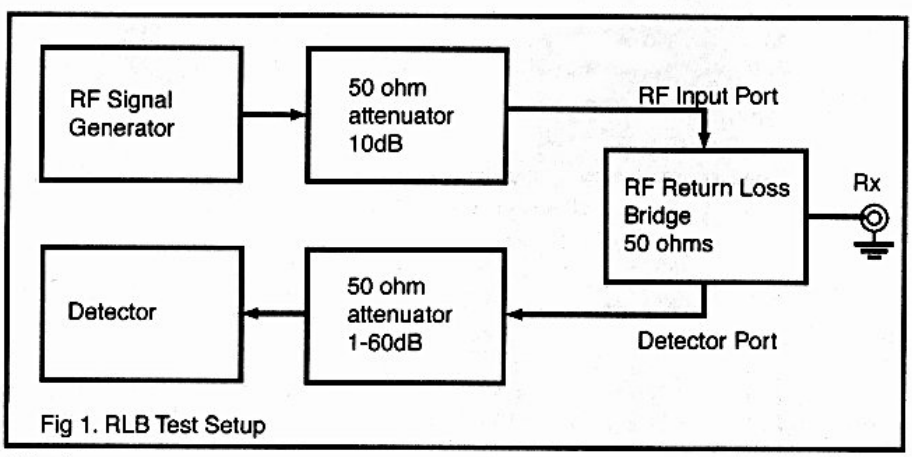
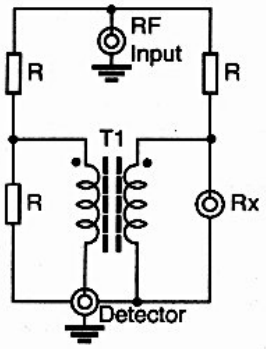


Fig 1. RLB Test Setup

Fig 1



% 51ohm 1%
T1 10 turns 30awg bifilar wound on Amidon FT-75 Core
Rx Network under test
Det RF detector
All conectors are BNC.

Keep leads short and use a metal enclosure.

Winding 'starts' indicated by a Dot. •

Return Loss dB	VSWR
1□	17.4□
2□	5.85□
4□	4.42□
6□	3.01□
8□	2.32□
10□	1.92□
14□	1.5□
20□	1.22□
25□	1.12□
30□	1.07□
35□	1.04□
40□	1.02□
60	1.002

Fig 2. HF RF Return Loss Bridge

Fig 2

S-meter the reading should be much lower (theoretically 0): e.g. < 1. This reading is your reference for an equivalent VSWR of 1:1.

3. Repeat steps 1 and 2 for the frequencies of interest to check that the bridge covers the HF range without any spurious responses.
4. Now connect a 100-ohm termination to the Rx port and repeat the above tests. This will give you a reference for an equivalent VSWR of 2:1.
5. Repeat with 150-ohm and 10-ohm terminations at the Rx port. These terminations will give you references for equivalent values of VSWR 3:1 and 5:1.

My calibration used a Yaesu FT747GX as the detector, and the S-meter readings will differ with other receivers depending upon the manufacturers specifications. The important thing is that there should be a big difference between the readings taken for an open circuit and a 50-ohm termination at the Rx port.

FT-23-75, 10 turns 30 awg, bifilar, 51 ohm 1%, sweeper 3.01

Resistive Termination

Freq (MHz)	open cct swr = inf	50 ohms swr = 2.0	100 ohms swr = 1	150 ohms swr = 3.0	10 ohms swr = 5.0
1.0	- 0 dBm	-30.4 dBm	-10.5 dBm	-7.0 dBm	- 3.0 dBm
2.0	0	30.7	10.5	6.9	3.0
4.0	0	31.0	10.5	6.6	2.9
6.0	0	31.9	10.5	6.9	3.1
8.0	0	32.0	10.4	6.5	3.0
10.0	0	31.0	9.6	6.0	2.7
12.0	0	32.0	9.9	6.0	2.9
14.0	0	30.9	9.3	6.0	3.0
16.0	0	31.7	9.3	5.8	2.9
18.0	0	31.7	9.2	5.9	3.1
20.0	0	31.2	10.0	7.1	3.7
22.0	0	31.3	10.3	7.4	3.8

Table 1

Using receiver S-meter readings for bridge detector. (Yaesu FT747GX)

Resistive Termination

Freq (MHz)	open cct swr = inf	50 ohms swr = 2.0	100 ohms swr = 1	150 ohms swr = 3.0	10 ohms swr = 5.0
1.0	S = 9	S = 0.5	S = 6	S = 7	S = 8
4.0	9	0.5	6	7	8
10.0	9	0.5	6	7	8
14.0	9	0.5	6	7	8
20.0	9	0.5	6	7	8

Table 1a

Results of calibration tests using the more accurate YADDS sweeper are shown in Table 1, and may be compared to those obtained using a dipper and S-meter shown in Table 1a. It should be remembered that generally we look for VSWR readings less than 1.5:1 (a common limit for network matching). The actual reading is not so important.

Practical applications for the RLB

1. Testing a 4MHz Low Pass Filter (LPF) designed for 50-ohm terminations.

   The response of the filter is plotted in Fig. 3, and was obtained with the YADDS sweeper. The equivalent results using the simple test setup is shown in Fig. 3a. The filter was terminated with a 50-ohm termination on the output, the input being connected to the Rx port of the RLB.

   The design requirement for this type of filter is to keep the VSWR below 1.5:1 for the pass frequencies.

   Referring to the calibration data in Table 1a, you can see that for an S-meter reading of 6 the VSWR = 2:1. From the plot of Fig. 3a this occurs at 4.1 MHz. Above this frequency the VSWR rises and is essentially infinite (i.e. there is no measureable return loss) at 4.4 MHz. The line through S = 5 will therefore have a VSWR of about 1.5:1, and any frequency below this line will be within our VSWR limit.

2. Adjusting an Antenna Tuning Unit (ATU) for a Balanced Multiband Antenna System.

   My ATU is a normal Transmatch type unit which feeds a centre-fed wire antenna via 450 ohm open wire feeders. The transmitter requires a 50-ohm load as is usual. Figs 4 and 5 show the resulting match obtained for the 20m and 17m bands at selected frequencies within each band. These plots were obtained using the YADDS sweeper in conjunction with the RLB, but useful results could be obtained using the simple test setup.

The 50 ohm coax which normally connected to the transmitter was connected to the Rx port of the RLB and the ATU adjusted for the best match at the chosen frequencies. The plots for each band have been superimposed on the one diagram; e.g. 14.0, 14.2, 14.4 MHz for the 20m band.

Referring to Fig. 4 and the table in Fig. 2.

Curve 1 indicates the reference level (Rx is open circuit, equivalent to infinite VSWR) and is a straight line at about -29 dBm.

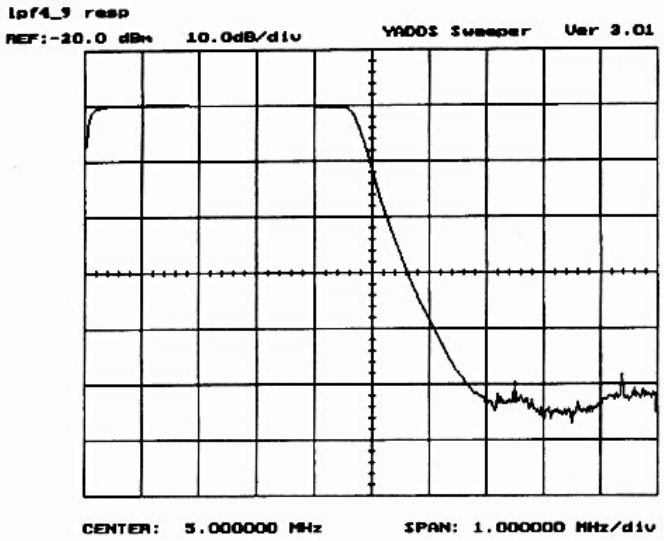


Fig. 3

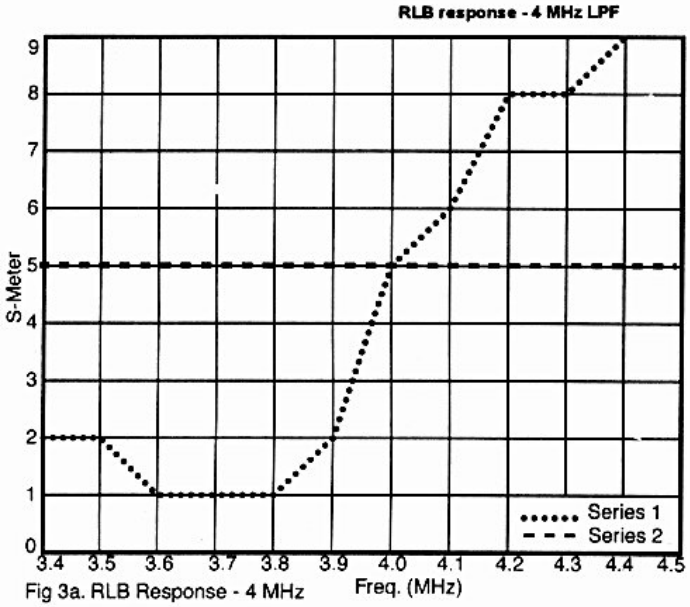


Fig 3a. RLB Response - 4 MHz

Curve 2 shows the results after adjusting the ATU for maximum return loss (ie min VSWR) at 14.0 MHz. The maximum return loss is about 40 dBm below the reference level and corresponds to a VSWR of 1.02. Any return loss greater than 14 dBm is equivalent to a VSWR < 1.5:1.

Curves 3 and 4 show results for 14.2 and 14.4 MHz adjustments. In each case the VSWR is about 1.02:1.

By checking the width of the curves at 15 dBm below the reference level we can see that one setting of the ATU at 14.05 MHz would cover the whole of the CW portion of 20m without the VSWR exceeding 1.5:1. Adjusting the ATU for frequency changes is one of the "hassles" with a multiband wire antenna.

Referring to Fig. 5 and the table in Fig. 2.

Curve 1 indicates the reference level (Rx is open circuit, equivalent to infinite VSWR) and is a straight line at about -30 dBm.

Curve 2 is centered on 18.02 MHz and shows the results after adjusting the ATU for best VSWR. The maximum return loss is about 32 dBm below the reference and corresponds to a VSWR of about 1.05.

These curves indicate a much broader response than those in Fig. 4. This means that the ATU tuning is much less frequency sensitive for the 17m band. The width of curve 3 at a return loss of 15 dBm below the reference shows that this one setting will allow operation over the entire 17m band without retuning, while keeping the VSWR less than 1.5:1.

Construction

The bridge is constructed in a small metal box with the 3 BNC connectors fitted to 3 sides. My box is made from tin plate (food container) and is approx. 40(w) x 40(w) x 25(h), and has a 40 x 40 x 5 lid. All corners are soldered inside the box and the lid is attached by small solder points to allow easy removal.

I have found that some die-cast boxes have protrusions on the inside surfaces and make it difficult to fit coax connectors.

Conclusion

The Return Loss Bridge is a very simple piece of test equipment which can provide useful information about matching problems. Some other simple pieces of equipment (e.g. attenuators and dipper) are required, but these are easily constructed and have been featured in past issues of AR (see August 99) and the various amateur handbooks.

ar

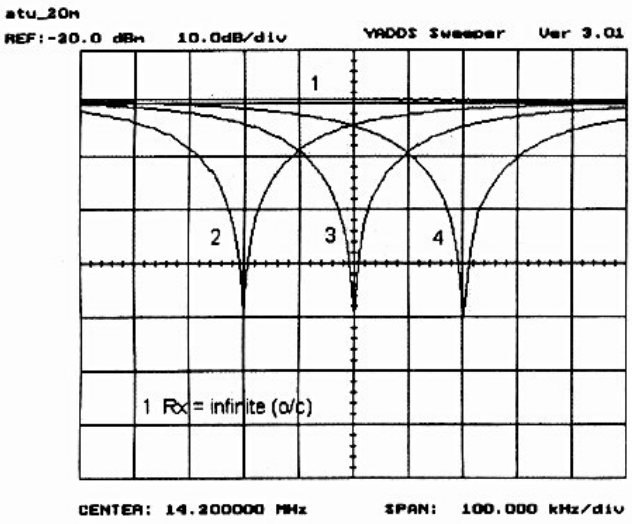


Fig. 4

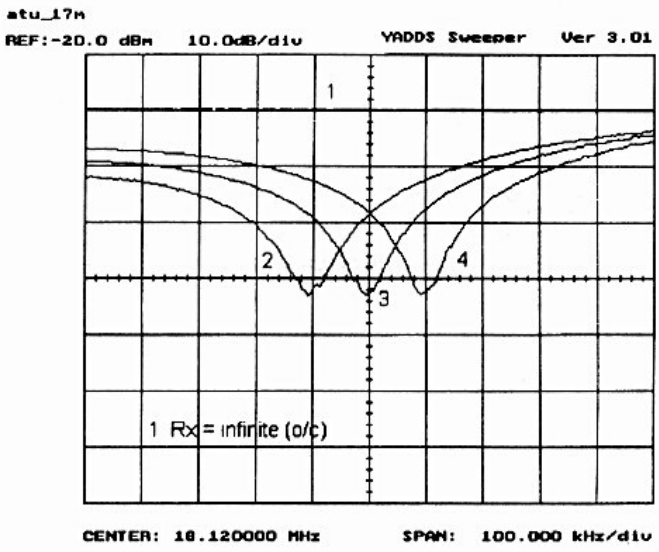
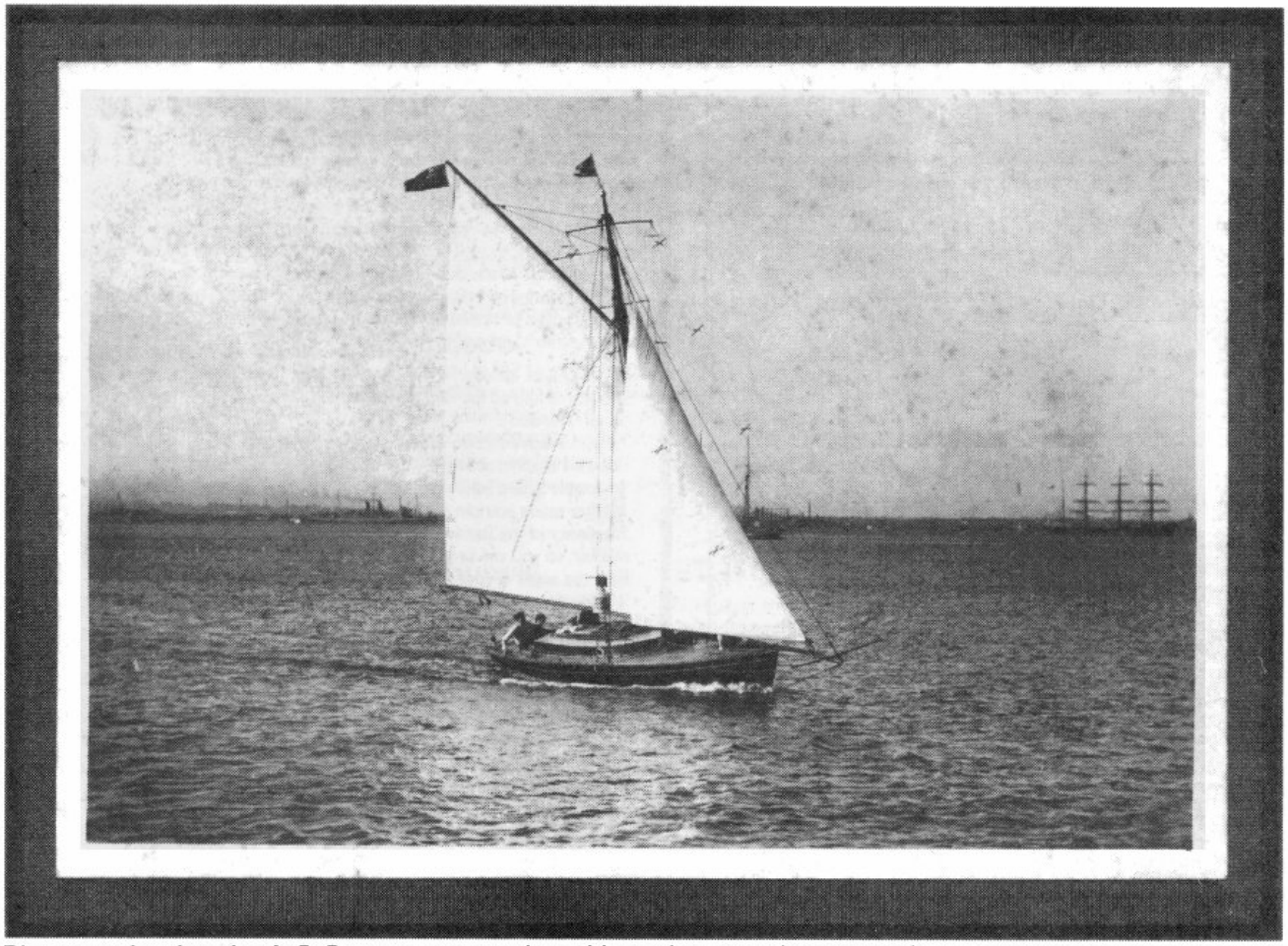


Fig. 5

OVER TO YOU

A maritime mobile radio pioneer



Photograph taken by A.C Green, the noted maritime photographer around 1930

This gaff-rigged yacht is the *Kestrel*, sailing on Hobsons Bay Melbourne in the early 1930s. My authority is Mr Jim Johnston, historian of the Royal Yacht Club of Victoria.

Skipper Noel Toohey was a well-known amateur radio operator Note the HF antenna tethered to the starboard shrouds and to a spreader on the bowsprit. The antenna can be seen held aloft by another spreader at the masthead. Cruciform spacers can also be seen keeping the antenna configuration.

The RYCV burgee is at the masthead and Red Ensign is at the peak of the gaff

I have been unable to establish Noel Toohey's call sign, but surely he must have been one of the first amateur operators to go maritime mobile using HF!

73 **Harrow Morgan** VK3CHM

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2m Antenna F-23A

Frequency:	144-148MHz
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Max. Power:	200W
Length:	4.53m, max wind 40m/s
Type:	3 x 5/8λ.
Connector:	SO-239 socket

D 4850

$199 SAVE $50

23cm F-1230A

Frequency:	1260-1300MHz
Gain:	13.5dBi
Max. Power:	100W
Length:	3.06m
Type:	25 x 1/2λ.
Connector:	N-type socket

D 4870

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D 4921 **$99.95**

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Other features include:

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Complete with NiCad batteries, AC plugpack charger, car cigarette lighter lead, antenna, carry strap and belt-clip. D 2797

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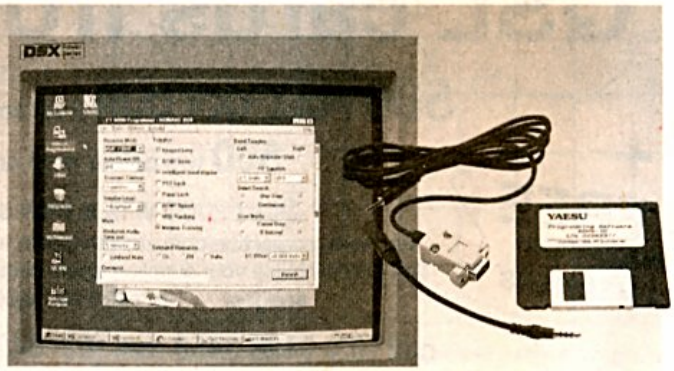

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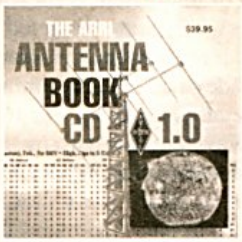

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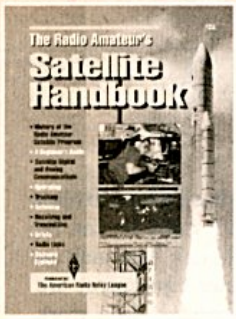

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In addition to the 15 chapters packed with the information you're looking for, there are appendices with active satellites, computer programs, Internet sites, a comprehensive glossary and more!

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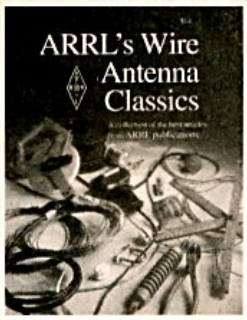

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Also includes:

- 31 tuneable memories
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Image rejection:	better than 70dB
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TECHNICAL ABSTRACTS

Gil Sones VK3AUI
30 Moore Street
Box Hill South, VIC 3128

Ground Line Tuner

Operating from multi storey apartments is quite a challenge. There is often little opportunity to mount antennas and obtaining a ground connection is difficult. Another problem is the unwanted coupling of RF into the mains lead. The whole rig can be at a considerable RF potential to the surroundings making operation very difficult.

In ***JA CQ Ham Radio*** July 1999 a Ground Line Tuner was described by 7K3GRX which tunes an earth or ground line to series resonance so as to ground the rig to RF. In the article, which showed a typical balcony for antenna mounting in a reinforced concrete building, the ground line ran to a plate 455mm by 910mm which capacitively coupled to the reinforcing in the concrete structure. This ground line was tuned to series resonance to provide a low RF potential point at the rig ground.

The AC line was also shown decoupled with chokes. This could be achieved by using clip on ferrite cores which are readily available or by winding the mains lead through a core. An RF current meter similar to that used in tuning the RF ground lead can be used to check that RF current in the mains lead is small. The choke winding or the number of clip on ferrites should be adjusted so as to minimise RF current in the Mains lead. This will also help in keeping the power supply free from RF interference effects.

The ground lead tuner is shown in Fig 1. A current meter is used to tune the ground lead to series resonance. The tuner is tuned for maximum current, which corresponds to series resonance. The series tuned circuit is made up of the 250 pF 1.5 KV variable capacitor and the tapped coil.The coil is wound with 1 mm diameter tinned copper wire on a 105 mm diameter former and is made up of 32 turns over 98 mm. The coil is tapped at 3, 5, 7, 9, 11, 13, 16, 20, 24, 27, and 30 turns. The coil used would preferably be an air wound type. The switch shorts out that part of the coil, which is not in use. The original was shown mounted in a plastic box which looked like one of the plastic storage boxes which are available locally.

Any leads around the shack which exhibit the effects of induced RF currents can be decoupled with ferrite chokes. The snap on types used with computer equipment are convenient and easy to use. A little work should make operation simple and free from the effects of stray RF. Also shown in advertisements in JA CQ there are a variety of clamps and mounts to mount antennas on balconies. The close proximity of neighbours and EMC would be another problem.

Fox Hunting DF Twin Antenna

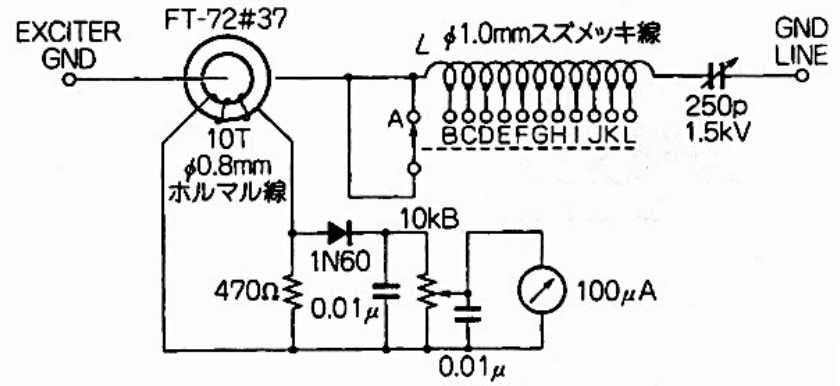
An antenna for fox hunting combining a Yagi with an interferometer for the Time Difference of Arrival (TDOA) system was described in ***QST*** October 1998 by R F Gillette W9PE. This uses slide switches to convert elements from a yagi configuration to the interferometer configuration. The antenna switching at an audio rate for the TDOA makes use of an integrated circuit GaAs RF switch.

The circuit of the system is shown in Fig 2. The slide switches are mounted on the boom at the centre of each element. The boom was made of a 3/4 inch aluminium U section. The element spacing was 16 inches which is 0.2 wavelength on two metres. The elements used telescoping antenna elements from surplus or spare parts stock. This allowed lengths to be quickly adjusted. The two dipoles of the interferometer can be set the same length and quickly adjusted to the Yagi director and reflector lengths.The cables are fitted with four ferrite beads to act as choke baluns.

These only need to be big enough to slip over the thin coax used. The coax cables to the interferometer elements must be equal lengths of the same cable. The circuitry can be mounted on the boom and the battery can be a small 9-Volt type. The GaAs switch was obtained from Mini Circuits. A web address of www.minicircuits.com was given which may help if there is some difficulty in finding a source.

Lengths used for elements differed slightly from the ARRL handbook values.

図1 グラウンド・ライン・チューナー



(a) 回路図

コイル・タップ (直径 φ105mm 長さℓ98mm 線径 φ1.0mm)												
	A	B	C	D	E	F	G	H	I	J	K	L
巻数 (N回)	32	30	27	24	20	16	13	11	9	7	5	3
L (μA)	68	58	48	38	28	18	12	9.5	6.7	4.0	2.3	0.91

(b) コイルデータ

Fig 1. Ground Line Tuner.

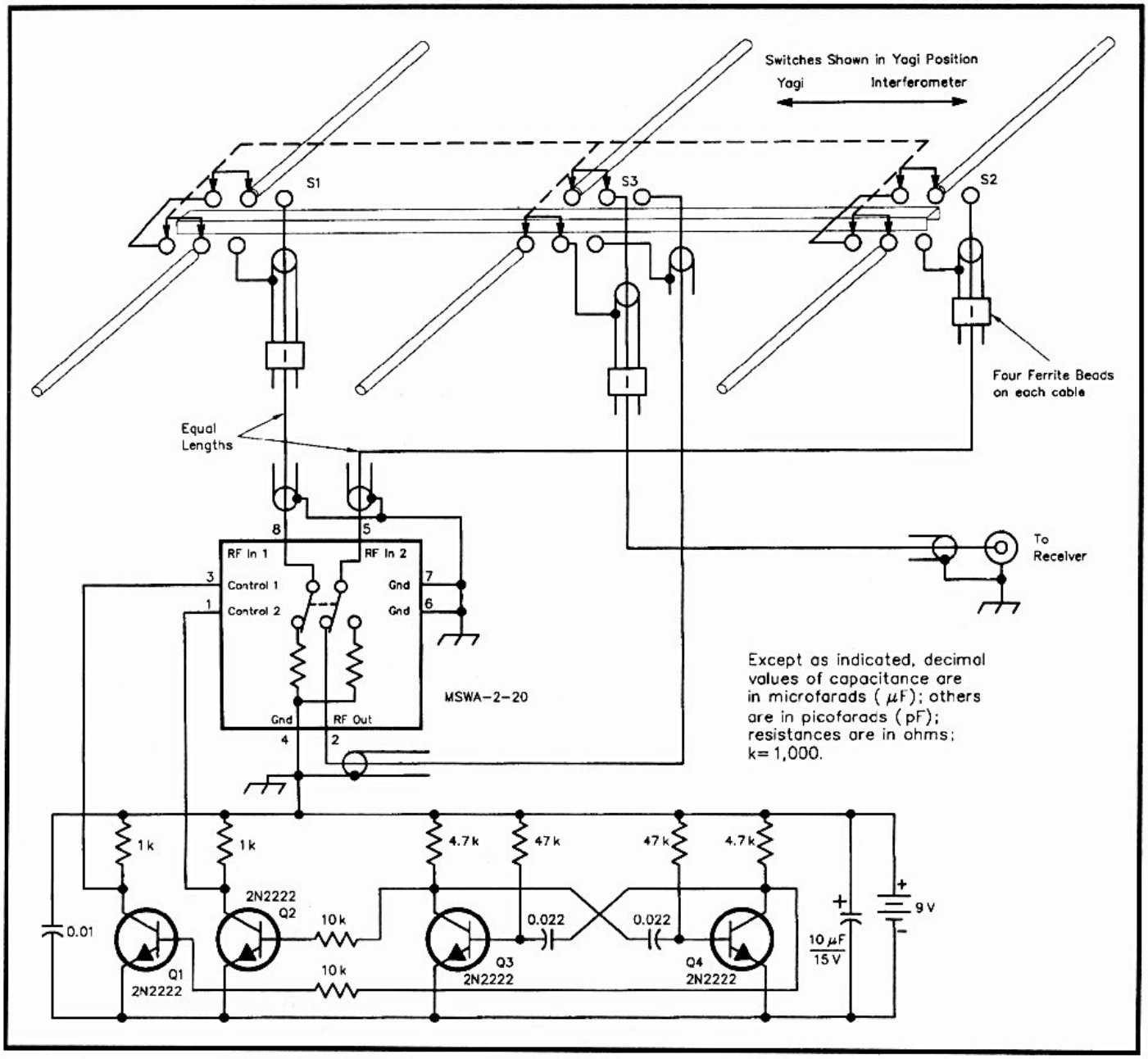


Fig 2. Yagi/Interferometer Antenna System Schematic.

The driven element was 37.75 inches rather than 38.125 inches given for 147 MHz. Similarly the reflector was 40.75 rather than 40 inches and the director was 34.75 rather than 36.125 inches. The lengths can be easily adjusted to cope with individual construction due to the use of telescoping whips as elements.

The interferometer switch runs at around 700 Hz and phase differences result in 700 Hz modulation of the received signal. Broadside the signals should be in phase and modulation should null. The direction can be found very precisely as the null is narrow. The Yagi is much broader but can be handy to resolve directional ambiguity and when the signal is very weak.

ar

Oxley Region Club elections

At the A.G.M. of the Oxley Region Amateur Radio Club Inc., held 7th August 1999, the following executive officers were appointed for the ensuing year.

President: **Charles Edmondson VK2FSH**

Vice President: **Bruce Walker VK2HOT**

Secretary: **Allan Nutt VK2GD**

Treasurer: **Roy Burgess VK2YOR**

from WIA Club Liaison Oficer: **David Pilley VK2AYD**

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All times are UTC

Six metres

I don't want to sound pessimistic but the six-metre band is not looking good.

Referring back to the last Cycle, on 23/12/88 VK3OT worked OH1VR/2 which heralded the European contacts which were prolific in 1989, first in February and March, then there were hundreds of European contacts throughout October and November. Whilst some video signals have been heard from areas bordering on Europe there has been little about which to become excited.

Where are the JAs? A few are being heard/worked in our northern areas, but precious little further south. John VK4FNQ has been reporting constant reception of JA beacons almost on a daily basis for the past three months, usually not very strong but reliable. It seems the JAs either have their antennas fixed on Europe or are simply not operating.

Below is reproduced a day of typical reception of signals found in the spectrum 40 to 70 MHz, by **John VK4FNQ.** The M/S reception is that of a meteor burst experimental station operating from the Philippines.

25 August 1999

0010 43.649 M/S S3, 50.014 V73SIX/b 559

0045 43.649 M/S S5

0121 49.649 M/S S5, 50.033 JR0YEE/b 519

0134 solar bursts S2 45 seconds

0145 43.649 M/S S3, 49.750 video S2, 50.009 JA2IGY/b 419, 50.023 JA1ZYK/b 519, 50.027 JE7YNQ/b 419

0220 43.649 M/S S5, 49.750 video S2, 50.009 JA2IGY/b 529, 50.023 JA1ZYK/b 519, 50.027 JE7YNQ/b 519, 50.110 JR0EQQ CQ 5x5

0255 50.110 JH0HQP CQ 5x5

0330 43.649 M/S S1, 49.750 video S9, 50.009 JA2IGY/b 529, 50.018 JA6YBR/b 599, 50.023 JA1ZYK/b 529, 50.027 JE7YNQ/b 519, 50.033 JR0YEE/b 419, 50.110 JA2BZY CQ 5x9, 50.490 JG1ZGW/b 519

0346 50.110 HL5XF CQ 5x9

0430 43.649 M/S weak, 49.750 video S9 0530 43.649 M/S S1, 49.750 video S1

0600 43.649 M/S weak, 49.750 video weak, 50.046 VK8RAS/b 599

0630 43.649 M/S S3

0650 43.649 M/S S3, 49.750 video S5, 50.009 JA2IGY/b 519, 50.023 JA1ZYK/b 599, 50.027 JE7YNQ/b 559

0724 50.110 JA7EVP worked VK4BLK

0800 43.649 M/S S5

0900 43.649 M/S S5, 49.750 video S9

0937 50.110 JN1JFC CQ 5x9

0959 43.649 M/S S3, 49.750 video S7, 50.009 JA2IGY/b 599, 50.023 JA1ZYK/b 519, 50.027 JE7YNQ/b 599, 50.033 JR0YEE/b 519, 50.120 JN1JFC worked VK4BLK, 50.485 JR9YHP/b 559, 50.490 JG1ZGW/b 529

1103 43.649 M/S S19, 49.750 video S3, 50.009 JA2IGY/b 599, 50.018 JA6YBR/b 579, 50.023 JA1ZYK/b 559, 50.027 JE7YNQ/b 559, 50.033 JR0YEE/b 419, 50.130 JH1WHS worked VK4BLK, 50.485 JR9YHP/b 539, 50.490 JG1ZGW/b 519

1200 43.649 M/S S5, 49.750 video S9, 50.009 JA2IGY/b 529, 50.018 JA6YBR/b 519, 50.023 JA1ZYK/b 559, 50.027 JE7YNQ/b 559, 50.033 JR0YEE/b 419, 50.485 JR9YHP/b 529, 50.490 JG1ZGW/b 419

1300 43.649 M/S S3, 49.750 video S9, 50.009 JA2IGY/b 559, 50.018 JA6YBR/b 599, 50.023 JA1ZYK/b 599, 50.027 JE7YNQ/b 539, 50.033 JR0YEE/b 419, 50.485 JR9YHP/b 519, 50.490 JG1ZGW/b 519

1308 50.110 VR2XMT CQ 5x2

1335 43.649 M/S S5, 49.750 video S9, 50.009 JA2IGY/b 419, 50.018 JA6YBR/b 559, 50.023 JA1ZYK/b 519, 50.027 JE7YNQ/b 519, 50.485 JR9YHP/b 559, 50.490 JG1ZGW/b 419, 55.250 video S9, 56.250 audio S1, 57.750 video S5, 59.750 audio S3, 61.250 video S1, 65.750 video S1, 67.250 video S1

While on the subject of what can be heard while vainly searching for amateur signals, **David Vitek** of Adelaide advises that from 1 July to 8 August there were few days when signals could not be found between 45 and 50 MHz, with 25/7 having signals right up to 105.7 MHz (4ABCRN Toowoomba). Others were 4ABCFM Nambour 88.7 MHz, 4CRB Nambour 89.3, and 4SBS Brisbane 93.3. These were heard between 0830 and 0850 and represent a rather high MUF for mid-winter.

Via **John VK4FNQ, Wally VK4DO** reports that on 27/8 at 2315 he heard the XE1KK beacon in EK09, peaking at 2330 and dropped out at 2350 on 50.0225. Wally said: *I was hearing VK4s on backscatter on ten metres a lot stronger than the Ws, also Channel 0 from Toowoomba 46.172 MHz on backscatter. I called but no Mexicans replied. The beacon is located near Mexico City and appears to have an elevated site.*

Steve VK2KFJ advises that the Lismore six-metre repeater VK2RIC 53.550 is repaired and back on air. Also, on 1/9 Steve asked about six metres FM in Japan. The following reply was received.

JA amateurs have a "band plan" that is enshrined into law. JA FM operators come out on: 51.00-52.00 FM; 52.90-54.00 all mode. Within this, 51.00 calling frequency. 51.00, 51.50 QTC frequency. Many FM stations appear around 51.00-51.20 with 20 kHz spacing, especially when Es appears.

It is illegal for JA amateurs to use duplex TRX (repeater) on 6m, so all of the frequency is used for simplex. We have repeaters on 10m, 2m, 70cm, and 1260 MHz bands. ... **Satoru "Mike" Fujitani JM3XAV/1.**

Two metres and above

Rob VK3EK at Bairnsdale QF32te, reports continuing activity on the Wednesday night net. On 25/8 at 1030 144.150 MHz SSB were Ian VK3AXH 5x3, Fred VK3YFM 5x9, David VK3XDR 5x1, Graeme VK3GRL 5x7, Lee VK3GK 5x5, Max VK3TMP 5x9, Michael VK3KTO 5x6, Tony VK3CAT 5x2. Also there but not heard were Warren VK3BWT from Mallacoota and Bob VK7JR King Island. Absent was Len VK3BMY.

Gordon VK2ZAB reports a reasonable level of morning activity, with the following on 25/8:

2141 2m VK2ATS Inverell 5/1

2144 2m VK4ZOW Pittsworth 5/2

2148 2m VK2KU Springwood 5/9

2151 2m VK2PB Narrabri 5/6

2159 2m VK3BWT Mallacoota 5/3

2205 23cm VK2BE Earlwood 5/9

2214 23cm VK3AJN Wangaratta heard at 5/1 later 5/2. Failed to coincide, no contact. VK2BE and VK3AJN did it.

2232 2m VK1ZQR Canberra 5/4

2237 70cm VK2BE Earlwood 5/9

2239 70cm VK3AJN Wangaratta 5/3

2248 2m VK2BUC Canberra 5/5

2251 2m VK2ZRE Adaminaby 5/2

2257 2m VK3TMP Somerville 5/2

He says: *This is fairly typical of late. Yesterday (24/8) VK2BE, VK2ATS and VK3TMP were not worked but on 2m VK3KEG at Frankston was 5x1 and VK1BUC was not in Canberra but was 5/2 on 2m from his portable location in Batemans Bay. A similar situation obtained on Wednesday (23/8) with VK2KU, VK4ZOW, VK2PB, VK3BWT, VK3TMP, VK3KEG, VK3AMH, VK2ZRE, VK2AAS and VK2FLR worked on 2m plus VK3AMH on 70 cm at 5/4. Times are all between 2130 and 2300. SSB activity on 2m and above is alive and well.*

Gordon VK2ZAB also reports that around the end of August or thereabouts there have been frequent, albeit fleeting, contacts between stations in Sydney and Bob VK3AJN in Wangaratta on 23cm SSB. All have taken place between 2200 and 2230. Lyell VK2BE did it first and when Bob was running 10 watts! Later when Bob upped his power to 50 watts VK2ZAB was also able to make contact with him. David VK2CZ has heard Bob and will undoubtedly make the contact when he gets his antenna up off the deck. Distance is about 530 km. Tests are continuing on Monday, Tuesday, Thursday and Saturday mornings.

New 144 MHz world record??

A message from **Chip Angle N6CA** via <vhf@w6yx.stanford.edu> reports: *At 0737 on the 21 August 1999, Paul KH6HME at BK29go on Mauna Loa volcano worked Clint W1LP/mm in DL51ce on 144 SSB. That's two grids South of Cabo San Lucas! Signals peaked S1 on meter. No go on 432.*

Clint had been hearing beacons for several hours prior to contact. There may have been some non-reciprocity to the path. Distance = 2954 miles or 4754 km ....a new world record.....!! Congratulations to Clint and Paul.

A new 144 MHz world record? The current Australian 144 MHz record is 6763 km for a TEP contact between VK4BFQ and JI7DMB, so maybe the KH6 record is a "USA only" type record! The current world record is shown in the 1999 Call Book at 7843 km and held by I4EAT and ZS3B on 30/3/79.

Now let's hear from David VK5KK

PSK31 and APRS

These two relatively new "modes" have created some debate, both overseas and locally, largely showing the global incompatibility of our bandplans. Leaving the debate for a moment, perhaps a brief definition of each is in order.

PSK31 is essentially a PSK Narrow band (31Hz) Radio Teletype mode, or the digital equivalent of CW! Like CW, it occupies a small amount of spectrum allowing narrowband receiver techniques (either analogue or digital) to be employed. All you need is a PC with a sound card to connect to your transceiver and some PSK31 software (usually freeware).

Simple experimentation has shown a PSK31 system can receive well into the noise floor, certainly below R5 SSB levels and without time integration techniques used with CCW (Coherent CW).

But to be useful for weak signal work frequency stability has to be in the order 0.2ppm or better at 144 MHz, let alone on Microwave frequencies! Software with some DSP filter tracking would help take up the slack.

Whether the mode is a passing fad or a serious alternative to the mode originally invented to create "sparks" will need time. If nothing else, it might test the cooling capabilities of a few amplifiers at 100% duty cycle!

APRS (Automatic Position Reporting System) can be likened to a network of packet stations on one frequency spread over a large, continuous geographic area. The network is based on Unnumbered Information (UI) packets, which don't require acknowledgment when received by another node. With acknowledgment being unnecessary, there is no way to "time out" a connection because there is no "connection" to time out.

For example, two areas of activity may be connected by several intermediate nodes. If one of the interconnecting nodes were to "go away", the single network would simply break into two fully functioning networks. When that node returned, the two separate networks would again be joined, automatically.

The primary function of APRS is as a pseudo Amateur GPS system. Why we actually need (or don't need!) an Amateur GPS system would fill the magazine!

One spin off, which seems to have created much interest to those studying propagation, has been employed with the USA "PropNET" system, using the 144.39 MHz APRS frequency.

A normal packet network requires nodes to "log-in" and "log-out", UI-networks allow nodes to come-and-go with little impact on the overall system. In a large system, spread over hundreds of kilometres, most nodes would normally be too far apart to be within range. However, as propagation conditions ebb and wane, nodes will progressively appear and disappear over a greater area. These distant nodes simply appear and disappear as Icons on each other's screens as propagation varies! Participating Nodes are then able to visually plot propagation anomalies in near-real time! Some interesting data has already been logged of Sporadic E and Tropospheric events in the US in the past year or so.

Ah yes I did mention 144.390 MHz. This frequency has been adopted for both terrestrial USA and satellite based systems. On consulting the Australian VHF bandplan, we suddenly have a problem. FM packet stations on the wrong side of the weak signal Beacon segment!

Given the potential advantages of an APRS "PropNET" type system serious consideration is needed on where or what happens. Alternative frequencies or bands are one solution for terrestrial use. PropNET also uses 53.530 MHz in the USA although tracking Sporadic E on six metres is probably not so exciting. The other alternative is to use an obscure frequency above 145 MHz where access is available to all license classes. Two metres is preferred over 70 cm for the Sporadic E propagation factors. We can do little about the Satellite system frequency.

Of course, just how effective such a system would be in this country is yet another question. Getting an effective system in a country of similar size to the USA but with about 1/30th of the Amateur population could be the greatest challenge. A lot of open spaces to cover. Till next month. **... 73 - David VK5KK.**

Microwaves

New 10 GHz Distance Record for VK4

Both **Wally VK6KZ/4** and Doug **VK4OE/4** sent similar reports of their 10 GHz SSB contact on 5/9 over a distance of 330 km, thus breaking the existing VK4 record. Reports were 3x1 and 4x1. There appeared to be little or no enhancement of propagation. Wally was at Springbrook Mountain and Doug at Hervey Bay, having spent three and a half hours travelling there! This appears to be one of the least obstructed paths in southern Queensland. Clearly the stage is now set for Doug and

Neil Sandford VK2EI to better the distances for VK2 and VK4.

Equipment was similar at each end, being about one watt transmitter output fed to dishes around 600 mm in diameter, and HEMT LNA's ahead of what are essentially G3WDG transverter systems and IC202 tuneable IF's.

Doug VK4OE says that he and **Rod Preston VK4KZR** are building 24 GHz narrow-band equipment, and one of their aims is to 'steal' the distance record for that band back "from the wondrous group of VK3s and VK5s who set it at the same time as the 10 GHz record about two years ago.

Wally VK6KZ in his report says that **Al Edgar VK6ZAY** has now progressed to the stage where he is willing to release a report on his 47 GHz activities. Al VK6ZAY has designed and built two transceivers for 47 GHz and reports as follows on his first successful contact on SSB over a 1km path.

The 47 GHz tests are bearing fruit with a successful 1-km SSB contact with Terry VK6TRG on 29/9. Signals varied from 5x3 to 5x9 over a 20-minute period across a water path on the Canning River.

No liaison channel was used but due to the excellent frequency stability and fixed elevation the only variable was in bearing. The path was the same as previously tested so the landmarks were well known and easily recognised. Contact was obtained in a few minutes using carrier and a sideband contact made immediately after.

Several changes have been made to the original design mainly in the area of waveguide feed and dish size. The above test used an 8 inch dish at one end and an 18 inch dish at the other both fed by circular waveguide and shepherd's crook feeds.

Terry Grammer VK6TRG reported as follows:

Just to let you know that Al VK6ZAY and I successfully completed a good two-way SSB contact over 1 km on 47.12756 GHz with signals 5x3 to 5x9 both ways. There were large variations in signal strength from not moving to S7 on my IC202 signal strength meter. Fading varied from 30 seconds to 1 minute superimposed on a larger cycle of 15 minutes. Path was over water within half an hour of heavy rain so the air should have been saturated. An 18-inch dish was used at one end and a 6-inch dish at the other. We are looking for a light 12 to 18 inch dish to break the VK record of 18.2 km. Al is already working on the Mark II model with active mixers.

The design has been published in the West Australian VHF Group Bulletin and has been submitted to "Amateur Radio". Essentially his 47 GHz linear transverter uses harmonic mixing with local oscillator (LO) injection at one quarter of the desired mixer input frequency. No transmit/receive switching is required as a single mixer is used for both transmit and receive with IFs being used to determine the direction of operation.

A 200 mm Cassegrain fed dish antenna provides over 40dB of gain with a beam width of less than 1.5 degrees. Local oscillator injection is at 11.75 GHz with a mixer input level of +12 dBm.

Wally VK6KZ also said that his travels have included a long discussion with Frank VK4CAU near Rockhampton via FM simplex about his activity on 10 GHz with gunnplexor gear and with Errol Hopper VK4ZHL about his Tellurometer tests. Errol was a mainstay starter of the SA/Vic team who set so many microwave activities across VK1, VK2, VK4 and VK8 about 18 months ago. He encouraged Errol to consider building narrowband SSB gear for 10 GHz.

New 144 GHz record

After several months of preparation, on 12 August 1999, **Will Jensby W0EOM** and **Bob Johnson KF6KVG,** have extended the 144 GHz US record from 2.3 miles to 3.36 miles (5.42 km).

Both stations were in CM87vk along I-280 near Stanford. Similar transmitters were used by both, triplers to 36 GHz nominal, and times 4 multipliers using a Hughes diode and surplus parts, assembled by W0EOM.

Receiving was by means of Hughes harmonic mixers, previously used on 120 GHz, on loan from the UCLA Microwave Engineering Lab, courtesy of Matt Espiau. R7000 receivers were used for the IF.

Antennas were 9 inch Cassegrain feed dishes. W0EOMs margin was about 0.5 of an S unit, while KF6KVG had a 1.5 S unit margin, possibly due to a better mixer.

Since both stations also work on 108 GHz, the 3rd harmonic, a quick check there indicated about 15 db margin. The stations will be retuned to 120 GHz for another try there. **From Will Jensby W0EOM and The VK-VHF Reflector.**

Contests

Three contests are looming in VK. The first is the Spring VHF Field Day to be held on Saturday 13/11 and Sunday 14/11. See the Contest pages for details.

The second is the **Golden Anniversary Ross Hull Memorial VHF Contest** commencing on 26/12/99 and finishing on 16/1/2000. The rules and conditions are to be found elsewhere or in the Contest pages of this issue. They follow closely the rules of eight to ten years ago. This is a desperation move by the Contest Manager John VK3KWA to try and stimulate interest of the order, which seemed apparent at that time.

Therefore, an invitation is made to operators to make a special effort to participate in this anniversary contest - the first Ross Hull Memorial Contest was held in 1950-51. It is hoped that the award certificates will reflect the golden aspect of this contest.

For the December issue I am preparing a special article devoted to the life of Ross Hull whose brilliant career was brought to a sudden end by electrocution in 1938. There will also be a full list of all Ross Hull Contest winners.

Then to finish the round of contests there is the VHF Field Day Contest to be held over the weekend of 15-16/1/2000. More details on this one a little later.

Station VNG likely to close

A message from **Ron VK3AFW** voices concern about the likely closure of VNG. He says: *Standard Time and Frequency station VNG is run under a contract that will end in June 2002. After that date the site owner proposes to sell it off to the highest bidder, probably for housing development. If the market is not buoyant at the time the sale could be put off and VNG might limp along for another year. But then it will close down. If you use VNG in your work or hobby then you need to make your need known to the National Time Committee or the VNG User's Consortium.*

It was thought that VNG would close this last June 1999, however, funding was found at the last minute. Earlier this year a voice announcement on VNG asked users to contact the VNG Users Consortium if they needed the service to continue. I believe that about 50 astronomers responded and three other people with different interests, a clock designer, a radio amateur and a physicist at a university.

I find VNG to be the only 24 hour time signal that I can rely on. WWV, WWVH, JJY are all unavailable at times during the day. GPS can give excellent time but it lacks the audio announcement that I find very useful.

I urge users of Australia's T&F HF reference to make their needs known. I am prepared to collate emails and forward them. Otherwise donations and comments should be sent to the VNG Users Consortium direct.

Irrelevant to VHF? Not for me. I use the VNG timing for setting/checking my analog clock for my meteor scatter skeds and to check the station digital clock. I also use it

to check my frequency standards, so that I can minimize my transmission frequency errors.

On behalf of the VK5LP shack I will be contacting Ron to voice my concern at a possible closure as I use VNG frequently. I urge all other users to do the same. Reply to: Ron Cook <ron.cook@mst.csiro.au>.

On this matter **Norm VK2XCI** says: *I think that we should all get behind this. I had a quick look around the shack and came up with the following. Remembering that I have had considerable experience in the metrology (the science of measurement) field.*

I for one make extensive use of the standard frequency service of VNG. I have a precision 10 MHz clock locked to the carrier. This provides all the timing signals in my shack, eg the buffered output is used to directly clock a Dick Smith 1 GHz frequency counter. This in turn is used to check the output of my signal generator, CRO timebase, CB radios, Tx output frequencies etc.

The buffered output also locks the drive motor of an astronomical telescope, directly drives a digital clock with encoded outputs for logging etc. Due to the vagaries of HF propagation, WWV, WWVH etc are unsuitable.

By the way. The simplest method of using the VNG carrier as a reference is the audio heterodyne method. In my case the 10 MHz clock in the DSE counter was divided down to 5 MHz then simply "sniffed off" and coupled to the input of my old DX300 along with the VNG carrier. The trimmer in the counter is then adjusted for "zero beat". The system is accurate to within a few hertz if you guess the centre of the fairly broad zero beat. I used it for ages before building the clock.

Closure

There's a mixed bag of interest items this month. Thankfully, they fill the column when so little occurs in the way of contacts on six metres.

I am grateful to have had an initial contribution from **David VK5KK** and look forward to another in November and December.

Closing with a rather appropriate thought for the month:

It is not power that corrupts but fear. Fear of losing power corrupts those who wield it, and fear of the scourge of power corrupts those who are subject to it. ... Aung San Sun Kyi in *Far Eastern Economic Review.*

73 from The Voice by the Lake.

ar

ACA/WIA/IW/Data Base

7th September, 1999 August Log input

Freq	Date	UTC	EMM	R'BY	ANT	SINPO
3.560	2108	1105	A3E	VK4AKX	DFLP	44444xx
Poss ID of Pyongyang N Korea				335 deg	x=15	
7.025	2108	1240	J3E	VK6RO	DIPL	55555xx
UIBC Indonesian Commercial stns					x=5	
7.098	1108	1025	A3E	4AKX	DFLP	33333xx
YDJ Rep of Indonesia, freq varies				300 deg Bris.	x=29	
14.001.8	2108	1003	A3C	4AKX	DFLP	33333xx
Has NON with Fax				320 deg	x=14	
14.003.2	0808	930	A3C	4AKX	DFLP	32223xx
UiFAX				310 deg	x=11	
14.016.5	1408	1010	xxx	4AKX	DFLP	23332xx
Multi channel printer				300 deg	x=6	
14.106	2108	0617	A1A	4BXC	DIPL	44444xx
Coded tfc					x=24	
14.211	2108	0745	FIB	4AKX+	DFLP	33332xx
850 hz	112bds....RDL Smolensk CIS					x=30
21.002	2208	0035	J3E	6RO	TH6	44444xx
Asian Commercial B/cast no tfc				360 deg	x=3	
21.257	2808	0800	FKT	6RO	TH6	44444xx
These last 2 are being checked agn.				360 deg	x=3	

Nothing of much importance

Cuban station R. Habana has cleaned up their 3rd H of 9.550 and are no longer being logged in VK4..... But we still will check! I expect things will liven up from now on though.

Gordon VK4KAL FIWC

AMSAT AUSTRALIA

Bill Magnusson VK3JT
RMB 1627 Milawa Vic. 3678
Email: vk3jt@amsat.org

National co-ordinator:
Graham Ratcliff VK5AGR
Email: vk5agr@amsat.org
AMSAT Australia net:
The AMSAT-Australia net is held on 80 or 40 meters LSB (Lower Side Band) each Sunday evening (except over the Christmas/New Year period). During the winter months in South Australia (end of March until the end of October) the net is on 3.685 MHz +/- QRM with an official start time 1000utc with early check-ins at 0945utc. During the summer months when daylight saving is in operation in South Australia (end of October until end of March) the net is on 7.068 MHz +/- QRM with an official start time of 0900utc with early check-ins at 0845utc. The times and frequencies have been chosen as the best compromise for an Australia-wide net taking into consideration seasonal propagation changes and the various state summer time variations.
AMSAT Australia newsletter and software service:
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001
Keplerian Elements.
Current keps are available from the internet by accessing the AMSAT FTP site, ftp.amsat.org and following the sub-directories to "KEPS".

Time to tool-up for Phase 3D

Recent events have made a launch this year very likely and it's time to start getting your radio shack ready for this exciting new satellite. The successful deployment of Phase 3D into its planned high altitude orbit should mark a return to the halcyon days of AMSAT when thousands of operators found they were able to enjoy satellite operation for the first time. Phase 3D is a satellite for everyone. As you will see from the frequency chart below, the transmitter/receiver complement has something to interest newcomers and experienced operators alike. The uplinks on 15m and 12m and the up/downlinks on 2m and 70cm will appeal to the many amateurs who will find that their radio shacks are already equipped for these bands. Analog mode is available so that should usher in a return to the voice-mode rag-chewing we saw in the early days of Oscar-10, Oscar-13 and the Russian birds.

Of course experimentation is well catered for with the higher frequency up/downlinks and the digital capabilities. Advanced CCD cameras and high speed modems will provide attractive areas for the more adventurous. The 'bottom' surface of Phase 3D is a veritable antenna-farm. If you have internet capability, have a look at the AMSAT web site. You can find it at www.amsat.org and follow the links to the picture gallery. It contains spectacular shots of the satellite during construction.

The impressive array of antennas is featured in a number of high quality photos. Three-axis stabilisation will ensure that these antennas will always be pointed downwards towards Earth. Squint-angle calculations will become a touch academic but will still be a guide to the very best communication times.

Here is a list of the projected frequencies and modes of Phase 3D.

Uplinks	**Digital**	**Analog**
15m	N/A	21.210 - 21.250
12m	N/A	24.920 - 24.960
2m		145.800- 145.840
		145.840 - 145.990
70cm		435.300 - 435.550
		435.550 - 435.800
23cm(1)		1269.000 - 1269.250
		1269.250 - 1269.500
23cm(2)		1268.075 - 1268.325
		1268.325 - 1268.575
13cm(1)		2400.100 - 2400.350
		2400.350 - 2400.600
13cm(2)		2446.200 - 2446.450
		2446.450 - 2446.700
6cm		5668.300 - 5668.550
		5668.550 - 5668.800

Downlinks Digital	Analog
2m	145.955 - 145.990
	145.805 - 145.955
70cm	435.900 - 436.200
	435.475 - 435.725
13cm(1)	2400.650 - 2400.950
	2400.225 - 2400.475
13cm(2)	2401.650 - 2401.950
	2401.225 - 2401.475
3cm	10451.450 -10451.750
	10451.025 -10451.275
1.5cm	24048.450 -24048.750
	24048.025 -24048.275

(Downlink is inverting = reverse)

Telemetry Beacons		**General Engineering**
Middle		
2m	N/A	145.880
	N/A	
70cm		435.450
		435.600
		435.850
13cm(1)		2400.200
		2400.350
		2400.600
13cm(2)		2401.200
		2401.350
		2401.600
3cm		10451.000
		10451.150
		10451.400
1.5cm		24048.000
		24048.150
		24048.400

Transponder Modes:	**Band Designator**
15m/21MHz	K
12m/24MHz	no designation allocated at present
2m/145MHz	V
70cm/435MHz	U
23cm/1.2GHz	L
13cm/2.4GHz	S
6cm/5.6GHz	C
3cm/10GHz	X
1.5cm/24GHz	Ka

What we now know as "modes", eg. mode B, mode J will be represented in future as a combination of at least two letters indicating the uplink(s) / downlink(s) in that order.

As an example: Mode - V/U would provide a 2m uplink and a 70cm downlink. This will bring the designations more into line with commercial practice and also cater for the large number of combinations that will be afforded by the IF matrix switch.

The mode switching schedule will be decided by the satellite controllers after the period of testing and commissioning.

Phase 3D promises to be a great asset to the AMSAT fleet.

IT'S TIME TO TOOL-UP!

Low-Tech vs High-Tech

Looking through the technical specifications of the new Yaesu FT-847 at a friend's place the other day I was moved to a mood of nostalgia. Such advances in the technology available to amateurs!

I remember listening to the signals from Sputnik-1 on my Eddystone 680x receiver. All shiny, all valve, 19 inches wide and heavy as a boat anchor.

It still has pride of place on my operating desk today. It's an antique radio, but it still works well and I often use it for short-wave listening.

When I looked at the bewildering array of goodies on the Yaesu I recalled my first satellite contact. It was via Oscar-6. Until then I had been content to listen to the telemetry beacons of the earlier Oscars and to the transponder of Oscar-3. Oscar-4 was a fizzer and Oscar-5 had a beacon only but Oscar-6 was a different matter.

The other station was my long time friend Brian VK3BLW. I didn't have a single-sideband radio, continuous modes were not allowed so it was Morse or nothing!

I used my 2 metre FM box to transmit by holding one hand over the microphone and sending the Morse characters on the PTT button. The carrier note was pretty warbly but Brian received it and we made our first satellite QSO.

I used a WW2 Collins 51J-4 to receive his 10-metre downlink. The 'antenna' was a 5-metre length of hook-up wire strung up around the picture rail in my lounge room. The uplink antenna was 19 inches of brazing rod at the chimney end of a piece of RG-58 coax. A crude setup to say the least.

My next major improvement was a 'tracking' antenna. I had been given a very second hand TV antenna rotator. One of the type that had a supposedly synchronous AC motor and a pre-set type controller. It could turn a small antenna to roughly where the pointer was on the scale.

I made up a short aluminium mast with a hinge at the top and by tilting it over to an angle one could follow a satellite across the sky with just one rotator. Miraculously I managed to stack a light 10-metre yagi, a 2-metre quad and a 70cm yagi on that mast. The system worked well right through to Oscars 7, 8 and 9. By that time I had acquired a set of early "Icom twins".

There was still no computer of course. They came along much later.

Reverse tuning was accomplished by stacking one transceiver on top of the other and stretching a rubber band around the dials.

If you put a twist in the rubber band and turned one dial, the other dial turned a similar amount in the opposite direction. Crude as it may sound, this worked surprisingly well. You could QSY from one end of a satellite passband to the other and not be too far off frequency.

I mention this bit of JT history because recently I have been helping a friend to get setup for the 9600 baud digital satellites using WiSP and all the modern goodies, including the Yaesu FT-847. My friend is a computer guru but has no experience with satellites at all. It has been brought home to me just how much, incidental and seemingly unconnected information and skills have to be mastered in order to grapple successfully with the advanced amateur radio satellites.

Coming in cold is, as Sir Humphrey Appleby would say, "very courageous". Those days of struggling with crude gear, calculating satellite orbits on paper, compensating for doppler shift manually, tuning the radios, pointing the antennas and making a contact at the same time amounted to a trial-by-fire and taught one a huge amount in a short time. It was all very exciting, romantic stuff.

Some would argue that the romance has gone. In reality it has just changed its form. Now the excitement is in coping with new computer software and operating systems, learning how to manipulate image files, moving higher and higher in frequency.

Notwithstanding the above, opportunities are still there for the modestly equipped newcomer. The International Space Station's amateur radio component ARISS will afford newcomers the chance to make space contacts with as little as a hand-held transceiver. This is always a thrill for the first-timer and who knows, it may excite someone to move on and try to keep pace, as it did with us in the early 1960s.

HF bands operation on the International Space Station

Latest information to hand says that HF antennas would be installed on the ISS on an early shuttle mission and that HF amateur radio gear will be carried to ISS early in 2000.

I have no details of frequencies or intended operating schedules but the idea of HF operation is exciting, particularly for newcomers to satellite operating. We'll certainly watch for more news on this one.

So ... Finally it's Goodbye to Amateur Radio on MIR

The crew have left and the Russian Space Station MIR is orbiting under remote control.

Latest news indicates that it will briefly play host to a de-commissioning crew in February 2000. They will collect experimental data and prepare MIR for its final plunge into the Pacific Ocean. No doubt at that time we will again be mindful of the immense amount of pleasure given to the amateur radio community over more than a decade of operation.

Voice contacts, packet radio, slow-scan TV, school contacts, Cosmonauts from many countries. From humble beginnings the MIR amateur radio operations became quite sophisticated and a household word among hams all over the world.

SUNSAT SO-35 On-air tests begin

In late August and early September the first on-air tests of the FM transponder on SO-35 were carried out.

From all reports the tests over Australia were successful with good signal strengths and excellent throughput of the uplink transmissions. Watch out for announcements of further tests in October. The FM transponder requires an uplink frequency of 145.950 MHz. The satellite receiver has auto-tune so doppler tuning of the uplink is not required.

The downlink frequency of 436.250 MHz could however move some +/- 9 kHz during a pass and will require tuning to compensate.

Amateur Radio Pico-Satellites set for October launch

Three American Universities have combined their efforts in producing a new concept in small satellite packages.

When launched in October the main package, JAWSAT will separate into two smaller packages, ASUSAT and OPAL. The two amateur radio pico-satellites will separate from OPAL to become StenSat and MSAT-1. These are incredibly small devices about the size of a packet TNC with antennas.

This project will receive more than the usual scrutiny as it may well point the way to future amateur radio "easy-sat" projects. Watch this space!

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REPEATER LINK

Will McGhie VK6UU

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JACK D. HADEN
P.O. Box 299
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Australia

Thursday 29th July 1999

Dear Will
I read with interest your comments in the July issue of ***Amateur Radio*** concerning the 29MHz FM repeaters around Australia.

Recently I operated as **C21JH** and **T30JH** and worked quite a number of VK's through various Australian 29MHz FM repeaters. Noting your comments on 'linking' I was told on 02nd July when operating as **C21JH** by **Andrew VK3XAS** who I was working on 29.640MHz FM at 0408z that I was being relayed or linked to 70cm! Not long after I worked other VK3's on 70cm through this link on 29MHz FM. So there is at least one repeater in VK3 on 29MHz with a link to 70cm.

Another VK told me, I forgot who it was, that I could work into a VK6 input around 29.120mhz FM and that's its linked to 70cm in WA, didn't get around to trying that out though.

On some days the propagation was that good in the Pacific I was working VK4's through the **Hawaii** 29MHz FM repeater on 29.660MHz, this isn't listed in the 1999 WIA callbook so it may be a new addition to the network? Sadly, not too many KH6 operators were worked on this repeater, only two or three, on good days I worked into California, Florida and Oregon through the Hawaii 660 repeater. The Hawaii repeater comes into to **C21** and **T30** land right up until around 1100z on good days.

Used to be able to work the **DX1HB** repeater in the Philippines, couldn't hear or access it this year, maybe it's off air? Same goes for the Japanese repeater on Hokkaido on 29.650MHz as I used to access this one quite easily in recent years, maybe propagation or just off air? Never worked a local JA on that repeater, was told that JA's not permitted to talk outside of JA on 29MHz repeaters, worked a few Americans with 7J6 calls from Okinanwa and in other parts of JA but not the locals.

The Asian interference, which runs from around 25.990MHz through to 30.000MHz on AM/FM comes mainly from the region starting in the South China Sea going through to the Gulf of Siam, truck drivers, taxi companies and fishing vessels I have been told are the main users, it's a free for all block from top of 25MHz to end of 29MHz I'm told. Lucky they don't have tone burst otherwise the repeaters would be jammed open for hours on end with their rabble.

Wollongong repeater on 29.620MHz is a hard nut to crack, must be it's location Will, working into VK4 and VK3 repeaters with meter above the nine but the Wollongong one always struggles to make it through, propagation is there as I hear the VK2 beacon on 28MHz a good 9 at times. Got into the Wollongong repeater a few times but never worked anyone! Worked a few VK5 people on the Adelaide repeater on 29.620MHz (VK5KLD, VK5KAM etc).

There was excellent propagation on 29 FM but sadly a lack of activity both on the repeaters and on 600 simplex. Worked more JA's and BG stations in China on 600 simplex that our own people in the Pacific region.

Great pity that more don't utilise 29 FM, there were many more on the band from VK/ZL in the last cycle than there are now Will. Last cycle I sued an FT-1000D 200 watts out on FM through a converted Stationmaster CB antenna from both Nauru and Tarawa, this season an IC-736 100 watts on FM and the same Stationmaster CB antenna.

Hope the above news is of interest, enjoy your snippets on 29 FM as it's one of my favourite DX bands, better than the nonsense going on 20 meters all the time!

73

Jack VK2GJH etc

I received this fax in response to the July 99 article about 29MHz repeaters around Australia and thought it worth reproducing in full. If you have some comment about the state of repeaters either in Australia or world wide, please feel free to drop me an electronic or normal mail line.

ar

INTRUDER WATCH

Gordon Loveday VK4KAL F.I.W.C.
VK4KAL@VK4JEM Fax/Ph 07 4985 4168

This month we will use our space to give you a pro-forma of an intruder log. Please photocopy about six sheets, and keep the pad handy.

As you fill a sheet, please fax it to Fax/Ph 07 4985 4168. By keeping the sheets small it means that the information is relatively fresh and prompt action can be taken where appropriate.

The only way to protect our bands is to know that the problem exists, and the only way to know is if you tell us.

ar

WIA / IARU Intruder Watch Log

Month..... Year.....

Name..... Signature..... Call.....

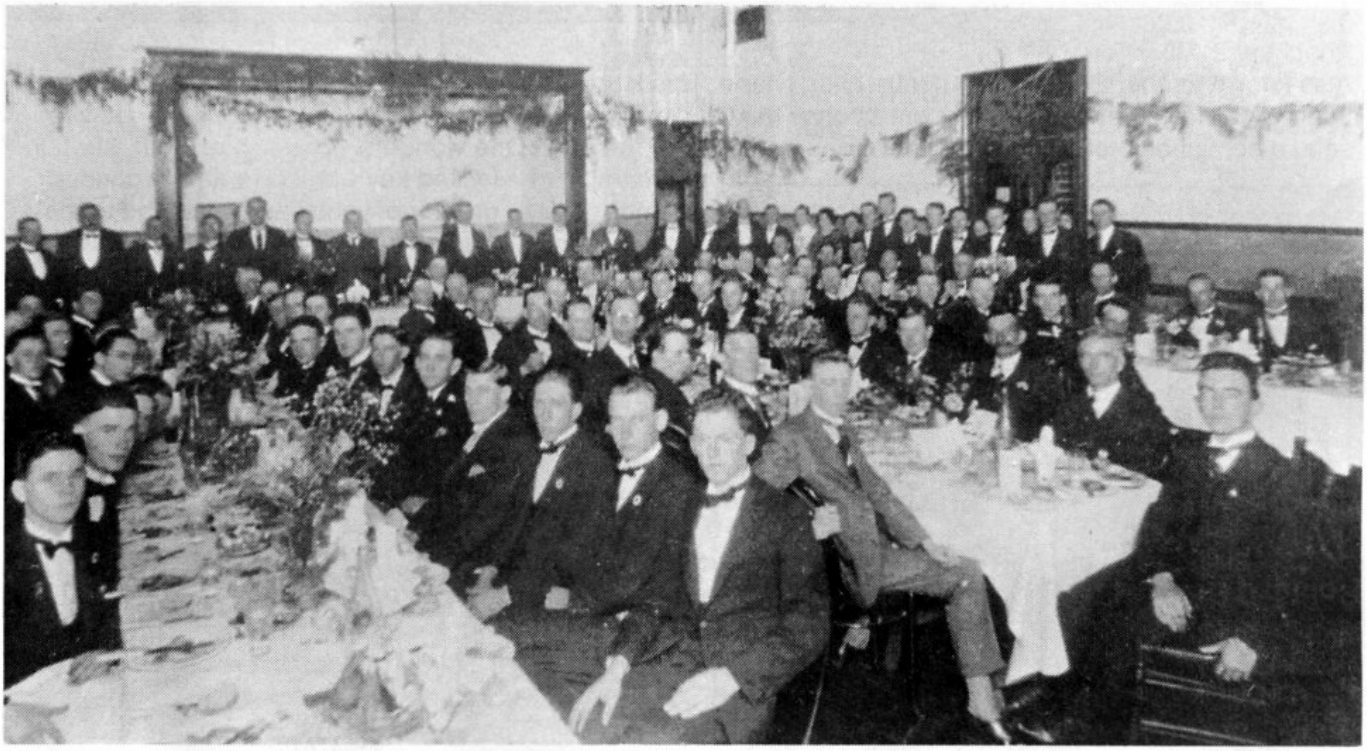
Address..... P/code .....

Equipment..... Antennas .....

Freq	Date	UTC	Emm	Brg Sinpo	Remarks & ID

Formally and formerly, a glimpse of WIA WA

Will McGhie sent us in this picture of the 1927 Annual Dinner of the WIA WA. Times have certainly changed, where are the YLs?



POUNDING BRASS

Steve P Smith VK2SPS
9 Peak Street
Bateau Bay NSW 2261
02 4334 7743 (H)

This month I have provided a visual inspection of military Air Force keys as used by the British and Commonwealth nations from early World War Two up to 1960's and early 1970's. I have kept the text to a minimum to encourage the largest size photographs that AR can manage.

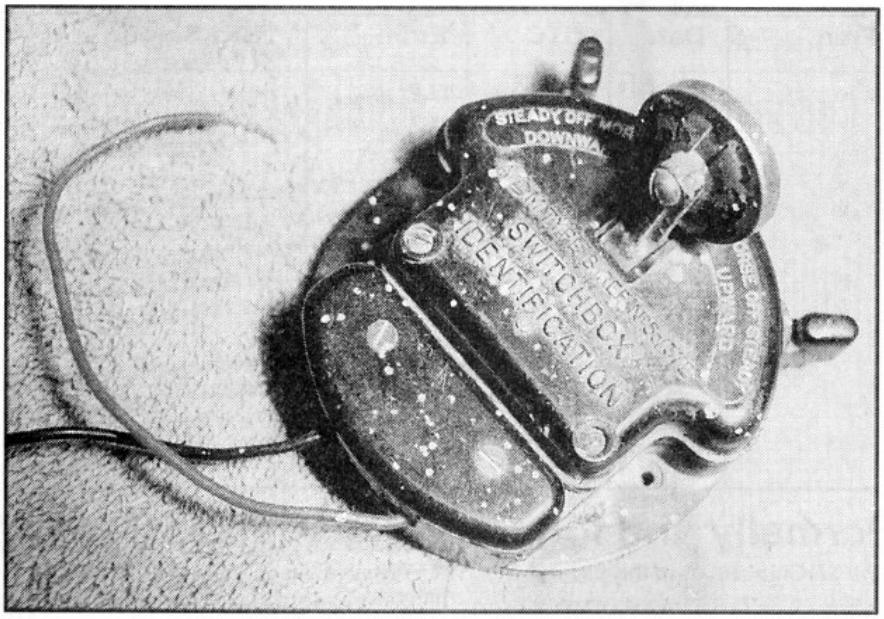
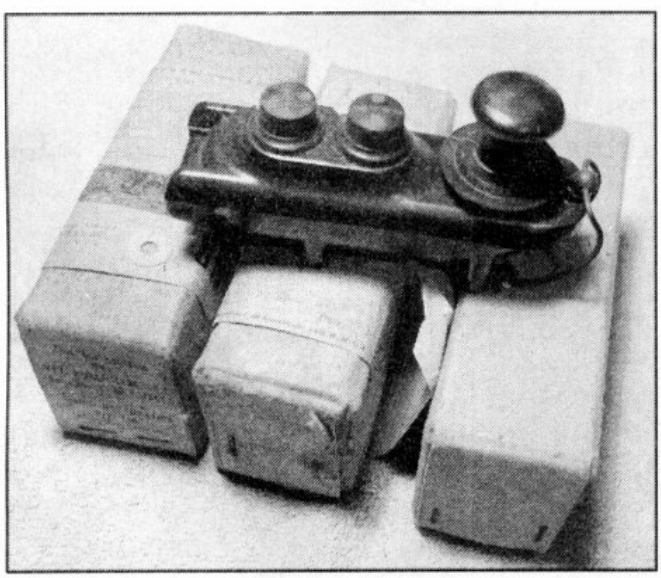


Photo 1. Switch Box Identification
REF No. 5c/3 72
This particular key was used in Spitfires and other fighter aircraft to switch on upper and lower lights as a means of identification or to manually send Morse to ground forces.

Photo set 2. REF no. 10A17741
Also known as the "Bath Tub Key" due to its shape. This key was used mainly in bomber aircraft, such as Lancaster, Halifax etc. In times of emergency the little spring clip at right was lifted up to cause the key to send a continuous tone while the operator scrambled for the exit. (One wonders whether the short duration screaming of a locked key from a mortally wounded bomber was of greater psychological damage to the listeners than it was of help to the imperilled crew. ed)



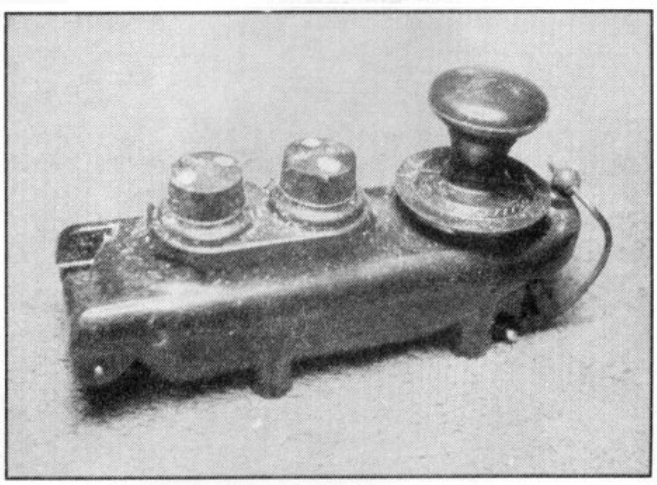
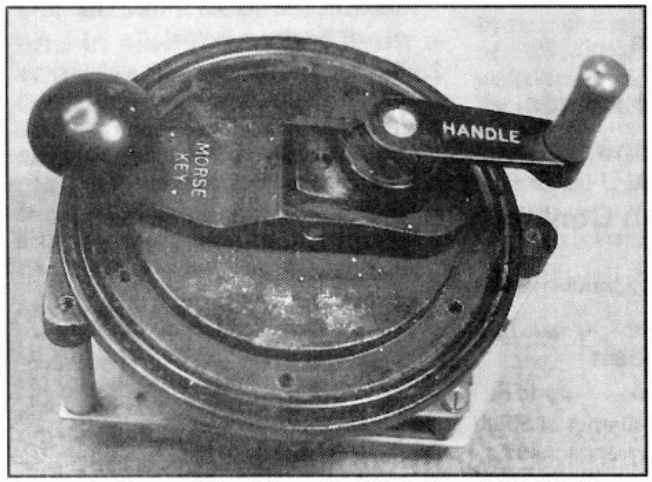


Photo set 3. This particular key sends "SOS" automatically, in groups of three, when the geared mechanism under spring tension is set, by rotating the handle one revolution and depressing the Morse key knob. It could be used by a non-telegrapher and still send clear "SOS" signals.



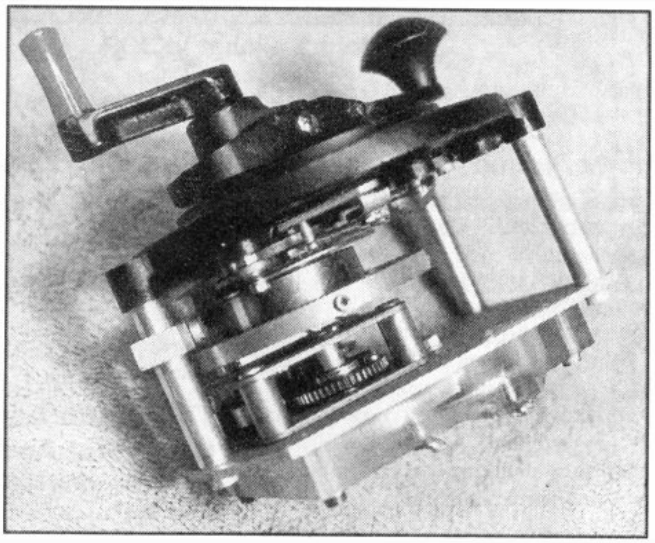
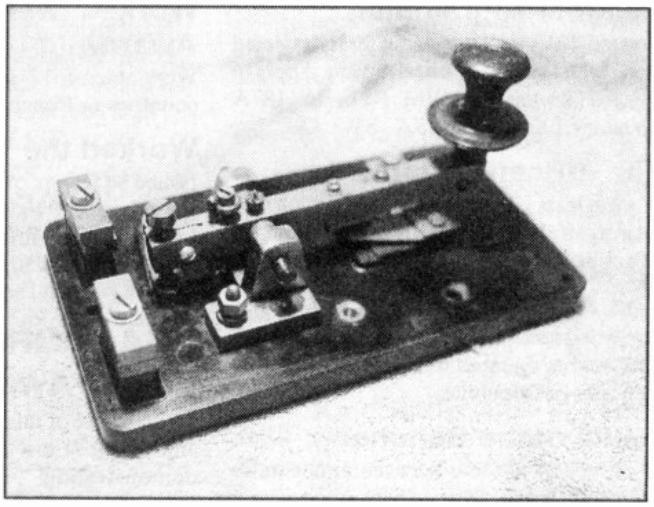


Photo 4. Morse Key Type D. REF No. 10A/7273
This key is much larger and heavier than the above keys. I believe that this key was used in base station installations, possibly used in bombers.



If any reader has any more information in regards to these keys, I would appreciate if you could contact me, as I regularly update my records.

Until next month, ar

SNIPPITS

Man(hole cover) on the Moon

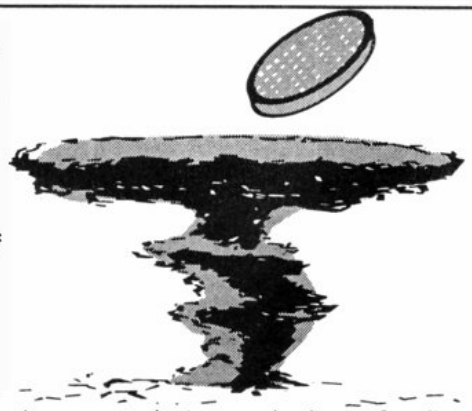
It is reputed that the first man-made object sent into space was done so inadvertently.

While testing the atomic bomb during WWII, initial tests were made in underground pits.

The first pit was covered with a cast iron manhole cover.

When the bomb was triggered, the pit cover was filmed by high-speed movie cameras as it lifted off at a calculated speed in excess of the Earth's escape velocity.

Unfortunately we can neither confirm or deny such a claim!!!



OK, that's escape velocity reached, now for direction!

AWARDS

John Kelleher VK3DP
Federal Awards Officer
4 Brook Crescent, Box Hill South, Vic 3128 (03) 9889 8393

Another request to local Club Stations who sponsor awards. Please send details and I will surely publish them

My profound apologies for the non-appearance of the current DXCC listings which are normally published in the August and February editions of this magazine. It must have gone astray somewhere in the works. Keep the upgrades coming, along with new applications, and I will make doubly sure that the listings appear as normal, in February, 2000.

Awards

USA : The Paper Chaser's Delight Programme.

General Requirements : GCR is accepted along with US$3.00 for each award. Apply to :- Allen Newton KA5GIM , Rt 1 , Box 187A , Whitney TX , 76692 USA. SWL OK.

The African Dozen.

Work at least 12 stations, each of which was located in different African countries or Republics.

The Asian Dozen.

For working at least 12 stations, each of which was located in different Asian countries or Republics.

Battle of the Benches

Work one of the few licensed amateurs in Whitney, Texas, where there once was a political battle over the placement of benches in the downtown area of the city.

The Canadian Conquest Award.

Work stations in ALL the Canadian Districts.

The Central American Conquest Award.

Work stations in ALL seven countries of Central America.

Worked All Districts.

Contact one station in each of the 10 USA call districts.

Land of the Lake Award.

Work one station along the shores of Lake Whitney, Texas.

Novice/Technician Contact Award.

Work 10 Novice or Technician Class stations.

The South American Conquest Award.

Work stations in all 13 countries of South America.

Work all Texas Districts.

Work 4 Texas stations, one in each of the areas of North, South, East and West Texas.

Worked twelve Islands Award.

Work at least 12 stations located in Island countries or Republics.

Worked the World Award.

Issued on receipt of proof of having worked stations world-wide, with endorsements as follows. 25 countries, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300.

USA - QRPp Low Power Award.

The purpose of this award is to promote the enjoyment of low power operating , while demonstrating its usefulness and practicality. Any authorised amateur frequency and mode of communication may be used. The applicant must demonstrate the following :-

1. That your transmitter output power was accurately measured to be less than one watt (QRPp).
2. That the distance communicated was over 100km (63 miles)
3. That no artificial means of active relay was used to complete the communications (i.e. repeaters, satellite transponders, digi-peaters, land-lines, etc.) However, reflections off the ionosphere, mountains, tropospheric ducts, auroral curtains, meteors, the moon, satellites, buildings, aircraft bodies and other passive reflectors are acceptable and encouraged.

Application :

1. Send a signed statement to the Manager that the power used was less than one watt, the distance greater than 100 Km, and that no artificial means of active relay was used.
2. Provide the Manager with a photocopy of either the station log or QSL card, clearly showing the date, time, mode, and frequency on which the qualifying communication took place.
3. If desired, provide the Manager with information concerning any desired endorsements, such as longer distances, lower power levels, WAC, WAS, WAZ, etc that you want listed.
4. Mail US$5.00 along with application materials to :-

   EFT, Low Power Award
   P.O. Box 460101
   Aurora, CO 80046-0101 USA

USA - The Redwood Empire Award.

Work at least one amateur in each of the 5 California North Coast counties of Marin, Sonoma, Mendocino, Humboldt, and Del Norte. SWL OK. Any band or mode. Contacts after 1 Jan 1981. Endorsements on request. GCR list and US$2.00 to :-

Redwood Empire DX Association,
Box 4881 Santa Rosa
CA 95402 USA.

Poland - Award '63 DNI'

The award 63 Dni is published commemorates Warsaw's uprising (Powstanie Warszawskie 1944). This is an official Polish diploma issued by Wlodzimierz Nawrot SP5NHV, with the consent of the Polish Short-Wave Association (PZK). The award is available to all licensed stations and SWL world wide.

The conditions are:- The applicant should obtain 63 points between 01 August and 02 October every year working amateur stations in Warsaw. The points available.

-contacts with SP5NHV (SO5PW, SO5DC, SN5PW, 3Z5PW) 23 points

-contacts with Scouts-Clubstation (SP5xx) 15 points

-contacts with other Clubstations (SP5Kxx SP5Pxx SP5Yxx) 8 points

-contacts with Warsaw individuals 5 points

Points for non-European stations are counted twice.

Contacts after 01 August 1994. No band or mode restrictions. Send verified GCR list and a fee of US$8.00 (10 DM or 10 Irc) to :-

The Award Manager
Wlodzimierz Nawrot, DL3KDC
Erzbergerallee 86
D-52066 Aachen Germany.

Another Polish award will be published in the December issue.

DX activity has been from, and is also expected from :-

Tanzania, Reunion Island , The Ivory Coast, Annobon Island, Central Kiribati, Samoa, Singapore, Barbados, Chatham Island, Fernando de Noronha, Guinea (Af), Iraq, and East Malaysia. There is a rumour circulating about the possibility of a new entity in Montenegro. After the dust settles in East Timor, we could be looking at another !

Fee increases

To commemorate my eight years as Awards Officer, and with the authority of the WIA governing body, the fees for WIA Awards to DX applicants and non-members has been raised to ten (10) dollars.

The first rise since 1975, the fee reflects the present cost of processing and posting awards, (an award posted now costs US$6.20, leaving no margin of workable monies, even to the purchase of stamps and stationery items. To assist in the future, please enclose an SASE for all return correspondence.

I have moved 21 files from my active DXCC list to inactive files, for not adding to their listings since June 1993.

The Radio Amateur Association of Greece Award

This award is available for working and confirming contacts with at least seven (7) different Greek stations from the nine SV calls areas (SV1-9/0). QSL's are not necessary. Applications muyst be accompanied by a certified list of QSO's (checked and signed by two other amateurs) together with a fee of US45.00 or 10 Irc's, and should be sent to:

RAAG Award Manager
PO Box 3564
Athens GR 10210 Greece.

Greek Island Awards

This award is available for working and confirming 10 contacts with at least 3 different groups of Greek Islands;

1. Criti
2. Dodekanisos
3. Ionian
4. Evvoia
5. Kyklades
6. Sporades
7. Lesvos
8. Chios
9. Thasos-Samothraki
10. Ikaria-Limnos.

Awards are issued for 2-way CW, 2-way SSB, Mised mode or Single mode, Mixed band or Single band. Endorsements and stick for each 10 different Islands. Qsl's are not necessary.

Applications must be accompanied by a certified list of Qso's (checked and singed by two other amateurs) together with a fee of US$5.00 or 10 Irc's (4 Irc for each endorsement sticker) and should be sent to the address listed above.

The Athenian Award

This award is issued for contacts with 25 amateur radio stations in the Athens area. Diploma is issued in any modes:

1st class - Awarded for contacts on 160 and 80 metres.

2nd class - Awarded for contacts on 40 and 30 metres.

3rd class - Awarded for contacts on the other bands.

Endorsement stickers are available for each 25 new contacts. Fees and contact address are the same as the two previous awards. This information was dated June 99, and came via Antonis Parashis, SV1ENG.

5U - Niger. Dan, AE4RP, the only active operator in this country, hopes to be active soon on 160/80 and 40 metres. At present he is running 100 watts into a 3-element tribander for 10/15/20 metres. QSL is via K4SE.

J8 - St Vincent. Mike, G0GPX will be active until 2001 as J87AB. He is working in Canouan as a missionary.

HS - Thailand. The Thai PTD has authorised HS stations to operate on 160 and 80 metres during any contests through December 1999.

4L - Georgia. Omari 4L50, is active around 50.11 and 50.13 MHz daily.

YASME - A new Awards manager has been appointed. He is Randy Wright W6CUA. His address is 18432 Wilmar Boulevard, Castro Valley CA 94546, USA.

The address of the new Swedish Rtty Awards Manager is Charlie Carlsson SM4RGD, Fjugestavegen 32, SE-692 73, Kumla, Sweden.

ANTARCTICA - Look for ET5YG on 14130 kHz daily around 0530Z, with assist from his manager, F5LBL.

ARGENTINA - Dion, LU8XPD is operating as LU1XT from Tierra del Fuego using SSB and digital modes. Qsl is via home call.

GUINEA 3X - Robert 3XY1BO can be found near 14003 kHz just before 0600Z. Qsl is via F5XX.

IRAN EP - Ali EP2MKO is usually Qrv on 21010 kHz around 0130Z. Qsl via RU6FZ.

MAYOTTE FH - Elio FH5CB can be heard on 21292 kHz around 1430Z daily.

UGANDA 5X - Tomo, JE9IKG, is now ace on SSB signing 5X1JA. Qsl to home call.

Arrest

The June 16 issue of *Asahi Shimbun* reported the arrest of Japanese Radio Operator Yasua "Zorro" Miyazawa, JH1AJT. In October 1995, Hirohiko Daikoku JG3QCW, holder of a first class licence in Japan allegedly had taken the second class amateur licence test for Miyazawa using false ID. At the time JH1AJT was a fourth class ticket holder.

The Japanese PTT received information, and started an investigation in March this year. The two men were arrested on June 16.

Last month "Zorro" was announced as the 1999 New Orleans International DX Convention's Dxer of the year. Zorro has been to many DX spots throughout Asia, Africa, and the Pacific including 701A, XW30/XW30A, A51/JH1AJT XU1A, XW8KPL, E31A and many others. during the 1998 Visalia International DX Convention, he announced that he had been invited back to the Kingdom of Bhutan for another Dxpedition. This operation, scheduled for early 1999, has yet to happen.

Herewith a list of top 25 most wanted countries (circa September 1998)

1.	PS	North Korea
2.	BS7H	Scarborough Reef
3.	BV9P	Pratas Island
4.	A5	Bhutan
5.	VU	Andaman & Nicobar Islands
6.	E3	Eritrea
7.	7O	Yemen
8.	FR/T	Tromelin Island
9.	FR/G	Glorioso Island
10.	3Y	Bouvet Island
11.	ZL9	Auckland & Campbell Islands
12.	VK0	Macquarie Island
13.	VU	Lakshadweep Islands
14.	VP8	South Sandwich Islands
15.	XZ	Myanmar
16.	3B7	Agelaga & St Brandon Islands
17.	SV/A	Mount Athos
18.	VK0	Heard Island
19.	HK0	Malpelo Island
20.	3C0	annobon Island
21.	KH5K	Kingman Reef
22.	FR/J	Juan de Nova, Europa Islands
23.	5A	Libya
24.	VP8	South Georgia Island
25.	ZL8	Kermandec Island

It seems significant to me (and others) that the majority of entries on this list are islands. Maybe I can do business with my old TS520S and a dipole???

Happy hunting and best 73,
de John VK3DP

ar

QSLs from the WIA Collection

Ken Matchett VK3TL
***Honorary Curator WIA QSL Collection**

Interesting QSLs of Mongolia, Rio de Oro and England

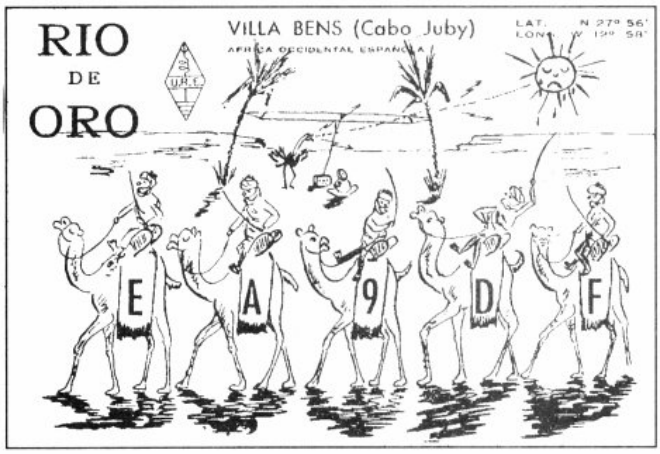
JU60MTZ

Indicating the importance of the railway in this vast country the QSL JU6OMTZ from Ulaanbeatar (sic) celebrated the 60th anniversary of the Mongolian Railway. On the reverse side of the card we learn that the railway's history dates from 1938 when the line ran from Ulan Bator to a coal mine at Nalaikh. The railway is the country's principal means of transport, accounting for more than 90% of the freight turnover. The railway also has links with amateur radio. Another Mongolian special event station JU5R was actually sponsored by the Mongolian Railway Board.

Mongolia was a DXCC country before the war but was not allocated an international prefix until 1947 at the International Telecommunications Conference in Atlantic City. The allocation was JTA-4TZ but only the prefix JT was used until a second prefix JU came on the air about ten years ago.

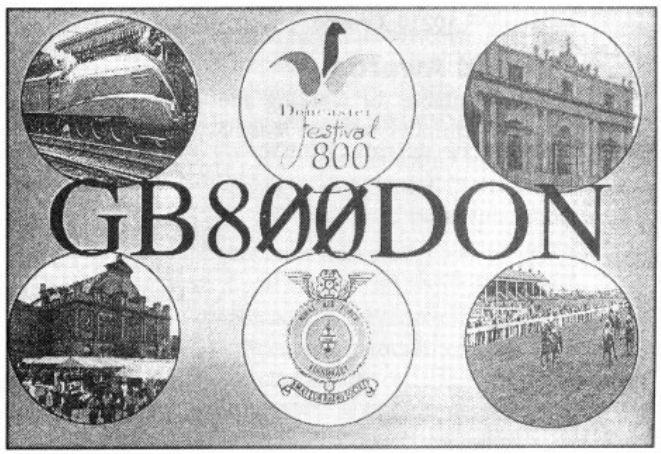
EA9DF

Rio de Oro, once a separate DXCC country, was the name given to a coastal portion of the former Spanish Sahara (sometimes described as "Spanish West Africa"), which ceased to be administered as a separate territory in 1958. When Spain relinquished control of the country in 1978 the territory was absorbed by Morocco and Mauritania. Nowadays it is part of the new DX country of Western Sahara. It was officially deleted from the DXCC listing on 1 August 1978 (although several recent publications have quoted the date as 8 January 1976). Despite its name, "River of Gold", the main mineral mined in the region is phosphate.



GB800DON

Ibis QSL, GB800DON, dated August 1994, celebrated the 800th anniversary of the granting of a Royal Charter to the settlement of "Doncaster" on 22 May 1194. It was the famous King Richard the Lionheart who put his seal to a document that allowed the town to claim borough status. Essentially this meant that the people of Doncaster could pay taxes directly to the Exchequer rather than to the rapacious Sheriff of the County of Yorkshire. A photograph of the famous Doncaster race appears on the front of the QSL.



Thanks

The WIA (Federal) would like to thank the following for their kind donation of QSL cards towards the National Collection:

Robin VK6LK Mike VK6HD Barry VK3XW Ken VK3AFJ Len VK3BYE Flans HE9RFF/L40370 Geo Lopatko SWL

Also the families and friends of the following "Silent Keys": Jim Robinson VK2ARJ Ivor Stafford VK3XB Ray Nottage VK5MI.

Courtesy of Jack VK5HT.

CONTESTS

Ian Godsil VK3DID
57 Nepean Highway, Aspendale 3195

Contest Calendar October - December 1999

Oct 2/3	VK/ZL/Oceania DX Contest		(Aug 99)
Oct 3	RSGB 21/28 Mhz Contest	(SSB)	(Aug 99)
Oct 9	Ten-Ten Int. Day Sprint	(CW/SSB/RTTY)	
Oct 9/10	VK/ZL/Oceania DX Contest		(Aug 99)
Oct 16/17	JARTS WW RTTY Contest		(Sep 99)
Oct 16/17	Worked All Germany Contest	(CW/SSB)	(Sep 99)
Oct 17	Asia-Pacific Sprint	(CW)	(Jan 99)
Oct 17	RSGB 21/28 MHz Contest	(CW)	(Aug 99)
Oct 30/31	CQ WW DX Contest	(SSB)	(Sep 99)
Nov 1/7	HA QRP Contest	(CW)	
Nov 6/7	Ukrainian DX Contest	(CW/SSB)	
Nov 7	High Speed CW Club Contest		(Jan 99)
Nov 12/14	Japan Int. DX Contest	(SSB)	(Dec 98)
Nov 13/14	WAE RTTY Contest		(Sep 99)
Nov 13	ALARA Contest	(CW/SSB)	(Sep 99)
Nov 13/14	Spring VHF-UHF Field Day	(CW/SSB)	(Oct 99)
Nov 13/14	OK/OM DX Contest	(CW)	
Nov 20/21	LZ DX Contest	(CW)	
Nov 27/28	CQ WW DX Contest	(CW)	(Sep 99)
Dec 4/5	EA DX Contest	(CW)	
Dec 11/12	ARRL 10 Metres Contest	(CW/SSB)	
Dec 18	OK DX RTTY Contest		
Dec 18/19	Croatian CW Contest		
Dec 18/19	International Naval Contest	(CW/SSB)	
Dec 19	RAC Canada Winter Contest	(CW/SSB)	
Dec 25/26	Original QRP Contest	(CW)	
Dec 25/26	Stew Perry Topband Distance Challenge		(CW)
Dec 26	Ross Hull Memorial VHF-UHF Contest		(CW/SSB)

Rules Aint Rules (if they are last year's)

Recently I asked that when you come to fill in your logs and send them, will you please be careful to read all the current rules and not to expect that things may be the same as the last time that you sent something for that contest.

Following the current rules makes the Contest Manager's job that much easier. This is important when you consider that most of the Contest Managers work and give of their time willingly but voluntarily. I am sure that you will see that anything that we can do to help them along also helps to get the results out quicker.

By the time this appears in print the VK/ZL "busy period" will be over again for another year.

However, please don't let this stop you from preparing for Contests — there are some good Spring and Summer events coming soon.

Note especially the ALARA Contest next month.

Please make every effort to support the **ROSS HULL MEMORIAL CONTEST** this year. It is different enough to be challenging and well worth the effort of trying something on VHF.

The RD Rules ran into some strife this year, for which again I apologise. However, a mistake has been found in the figures used for calculating the 1999 Benchmark. This has affected the published 1998 results. Alek Petkovic VK6APK, the RD Contest Manager, has sent some updated corrections — see below.

Finally, another request from me. If you ever need to send me any information electronically, PLEASE send it in PLAIN ASCII TEXT — NO Windows/Word/RTF/ Excell/fancy formatting — just PLAIN ASCII TEXT, please.

73 and good contesting de Ian VK3DID

It was with interest that I read the following comments about the John Moyle field day results

RESULTS of 1999 John Moyle Field Day Contest

From Eric Fittock VK4NEF,
Contest Manager

Thank you to all who took part this year. A total of 53 logs received, 16 of which were received by e-mail.

Scores in the Multi-op section were slightly down this year, with VK3FRC taking first place with 14,254 points, followed by VK3ER and VK3APC with 10,090 and 4,850 points respectively.

The President's Cup will not be awarded this year as no entry was received for the portable CW Section.

The leading home stations are ZL2AWH with 329 points, and VK3CAT with 198 points. On behalf of the operators who were portable, our thanks to the home stations for your support during the contest.

Call\class\mode\band\score)

* = certificate winner.

Portable, Six Hour.

VK3BEZ	Mult	All	All	1062	*
VK2FRE	Mult	All	All	216	*
VK2BOR	Mult	All	All	150	
VK5UE	Sngl	All	All	134	*
VK3DPW	Sngl	Phone	All	1056	*
VK5AR	Sngl	Phone	All	834	*
VK4OE	Sngl	Phone	All	80	*
VK5AIM	Sngl	Phone	All	148	
VK3GH	Sngl	Phone	All	146	
VK3KMF	Sngl	Phone	VHF	750	*
VK3YZR	Sngl	Phone	VHF	61	
VK3KAI	Sngl	Phone	VHF	588	*
VK3JED	Sngl	Phone	VHF	368	
VK3YE	Sngl	Phone	VHF	358	
VK4IS	Sngl	Phone	VHF	218	
VK5ZFW	Sngl	Phone	VHF	20	
VK5ATQ	Sngl	Phone	VHF	10	

Portable, 24 Hour.

VK3FRC	Mult	All	All	14254	*
VK3ER	Mult	All	All	10090	*
VK3APC	Mult	All	All	4850	*
VK4WIS	Mult	All	All	3848	
VK3CNE	Mult	All	All	3482	
VK2HZ	Mult	All	All	1304	
VK4BAR	Mult	All	All	802	
VK6ANC	Mult	All	All	524	
VK2DKD	Mult	All	All	504	
VK2FFG	Mult	All	All	488	
VK2LE	Mult	All	All	436	
VK2IBT	Mult	All	All	336	
VK4QD	Mult	All	HF	1620	*
VK4IZ	Mult	All	HF	1090	*
VK5ARC	Mult	All	HF	938	*
VK5BAR	Mult	All	HF	448	
VK5GRC	Mult	All	HF	176	
VK4EV	Sngl	All	HF	308	*
VK4VW	Sngl	Phone	HF	576	
VK5DG	Sngl	Phone	HF	216	
VK4JAE/7	Sngl	Phone	HF	54	

Home, 24 Hour.

ZL2AWH	Sngl	All	All	329	*
VK3CAT	Sngl	All	All	198	*
VK3TJN	Sngl	All	All	104	
VK4AO	Sngl	All	All	90	
VK3IO	Sngl	All	All	79	
VK3ALD	Sngl	All	All	62	
VK3DID/QRP	Sngl	All	All	55	
VK2AGN	Sngl	All	All	46	
VK4XXT	Sngl	All	All	34	
VK4KF	Sngl	All	All	29	

Home, 6 Hour.

VK2CZ	Sngl	All	All	105
VK4XD	Sngl	All	All	68
VK6BGN	Sngl	All	All	11

Check Logs.

VK4FW and ZL2VW

Comments on the Logs.

Please refrain from scanning a log into the computer and then sending as an Attachment. Rewrite or type into computer and then send. Reason being it took 100 minutes to receive a scanned log and the person sent it TWICE !!

A total of 200 minutes spent late at night waiting for the"read mail" to finish, I was not happy. UTC time in logs please not local. Rule 35, Portable stations shall add the letter "P"to their own cipher ie RS(T)001P. PLEASE DO SO!

Some comments from Logs.

I must point out that rule 35 is silly...VK5.

I had a good time camping and contesting in the forestry camping grounds ...(VK4VW)

It is a pity that many stations do not make use of SSB/CW at V/UHF - they would be able to achieve significantly greater distances...(VK3KAI)

It would be much better to encourage the use of Maidenhead locators as it is less confusing and requires less time to send compared to Latitude and Longitude ..(VK3BEZ)

I observed a variety of "locator" methods used, some of which were very poor eg. "near ABC Hill/XYZ Creek" - I had to make a "best guess" for calculating scores. The station involved could only give a Lat/ Long reference to the nearest minute - this is often insufficient for distance calculations. A 6-digit Maidenhead Locator should give accuracy to about 1.5 km (from memory) at worst ...(VK3KAI)

Most of the weekend it drizzled with rain but the tent kept us dry and the weather didn't seem to affect the antenna system...(VK3ER)

Asia-Pacific Sprint (June 1999)

call	score	zone	award
VK4EMM	1716	30	T-shirt
VK6NU	806	29	"

RESULT Novice Contest 1999

from Robert Archer VK2TRA, Contest Manager

22 logs received, with three of these being mixed CW/Phone.

Posn	call	score	award
1	VK4SM	429	Highest score overall Highest score Phone
2	VK2NNN	421	Keith Howard Trophy Highest VK2 Novice
3	VK3JWZ	378	
4	VK4LUV/7	303	Highest VK7 Novice
5	VK4JAE/7	231	
6	VK2LEE	229	
7	VK4WSS	203	
8	VK2IBT	163	
9	VK3KQB	149	
10	VK2ATZ	106	
11	VK2CW	103	
12	VK3GH	90	
13	VK6BIK	62	
	VK3YE	62	
	VK2HV	62	
16	VK5NJ	55	Highest score CW
17	VK3DID	41	
18	VK2LT	35	
19	VK2VZB	31	Clive Burns Mem. Trophy

Thanks to all participants. Certificates of Participation (sponsored by Westlakes ARC) have been sent to all who sent logs.

RD Contest Amended Results 1998

Table 1: each Division's placing and its overall Improvement Factors.

Table 1: Divisional Ladder

1st	VK7	2.535
2nd	VK2	1.269
3rd	VK5/8	0.993
4th	VK6	0.807
5th	VK4	0.655
6th	VK1	0.586
7th	VK3	0.502

The total scores in HF and VHF are :

Table 2: Divisional Scores

Div'n	HF	VHF
VK1	694	44
VK2	5513	95
VK3	2775	3145
VK4	3640	317
VK5/8	3890	1416
VK6	3297	3016
VK7	1331	1215

These totals were used to calculate the Improvement Factors, which determined the winning Division. They were also used to calculate Bench-marks for this year's contest.

1999 Benchmarks

These are the total scores which must be obtained by each Division to improve on its results for the previous year.

Div'n	HF	VHF
VK1	714	170
VK2	4771	78
VK3	3773	7988
VK4	3672	820
VK5/8	3662	1532
VK6	2997	5502
VK7	1795	512

Results Pacific 160 metres contest July 1999

from Ian VK3DID Contest Manager

CW Section			SSB Section		
Place	call	score	Place	call	score
1	VK3IO	693*	1	ZL2AS	830*
2	VK5CRS	504*	2	VK3IO	792*
3	ZL2GT	301*	3	ZL2GT	336
4	W8JI	175*	4	VK3WWW/P	210
5	VK4AXM	138*	5	ZL2LF	100
6	VK3DID	120	6	VK2AVQ	50*
7	VK2BQQ	66*	7	VK3DID	24
8	ZL2LF	55	8	W8JI	20*
9	VK2AVQ	35	9	VK4AXM	16*
10	VK3WWW/P	2			

* = certificate winner

Report

Ten logs were received, most being for both CW and SSB modes. Congratulations to ZL2AS and VK3IO as Mode winners. My sincere thanks to those who took part and to those who sent their logs, but I am very disappointed that so few logs were received.

A few difficulties were pointed out by some operators and I hope that I have overcome these for next year. If anyone would like a copy of the revised rules for 2000, please let me know.

Results 1999 BERU Contest

from Bob G3PJT

Posn	call	score
Open Section		
8	VK4EMM	6312*
11	VK3BJ	6119*
14	VK6VZ	5847*
41	VK5GZ	2807*
43	VK8HA	2620*
58	VK3XB	1761
59	VK3MR	1623
60	VK2DID	1452
64	VK4XW	1318
66	VK8AV/3	1214
71	VK3KS	623
74	VK5HO	498
Restricted Section		
2	VK2APK	4115*
11	VK2AYD	2583
22	VK6AJ	2264*
26	VK4TT	2140*
30	VK2BQQ	1994
HQ Stations		
2	VK4WIA(VK4XA)	4564

* = certificate

50th Annual Ross Hull Memorial VHF-UHF Contest

John Martin (VK3KWA),
Contest Manager

0000z Sun 26 December 1999—2400z Sun 16 January 2000

Special 50th Anniversary trophy to be awarded

This year marks the 50th anniversary of the contest named in honour of Ross A. Hull, the Australian-born amateur who discovered tropospheric propagation and made major contributions to VHF equipment design and construction.

There are several changes to the rules this year. Last year's short contest was not successful, so the duration has been re-extended. Also scoring has reverted to the best 7 UTC days of your choice, and a separate section for the best two consecutive UTC days. You may operate for only part of the contest, or even just one weekend, and still do well.

The band multipliers have been reduced slightly, to provide more incentive for those who do not have microwave gear.

The rules relating to the use of Calling Frequencies have been reworded, so please read them carefully. I do not want to penalise occasional contest operation on Calling Frequencies when it is genuinely impractical to move to another frequency. On the other hand it is important to keep Calling Frequencies clear of local QRM so that it is easier to hear any weak signals.

Try your luck (and your skills) in the contest this year, and good luck and plenty of DX.

The Contest and Special trophy

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull.

This trophy has the name of each year's contest winner engraved on it, and other divisional awards may be made.

To mark this fiftieth anniversary, a special trophy with a representation of the original trophy and winners detail etched into it,will be donated and permanently awarded.

The contest is open to all amateurs.

Duration

0000 UTC Sunday 26 December, 1999 to 2400 UTC Sunday 16 January, 2000. In Eastern Summer Time, that is 11 a.m. on Sunday 26 December to 11 a.m. on Monday 17 January.

Sections

A. Best 7 UTC days as nominated by the entrant.

B. Best two consecutive UTC days.

Entrants may submit logs for either section. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General Rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest operation is permitted below 50.150 MHz. Recognised Calling Frequencies should not be used for contest calls, exchanges, or liaison. A contest calling frequency of .150 on each band is suggested. All rulings of the Contest Manager will be accepted as final.

Penalties

Minor errors in distance estimates or score calculations will be corrected and the score adjusted accordingly.

Contacts made on Calling Frequencies will be credited only if the entrant provides a satisfactory explanation of why it was not practical to move to another frequency. Otherwise such contacts will be disallowed. Persistent unnecessary use of Calling Frequencies will lead to disqualification.

Exchange

RS/RST reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point; 100 - 199 km: 2 points, etc).

For 6 metres only, contacts up to 1000 km: as above. Contacts from 1000 km to 2400 km, 1 point. Contacts over 2400 km, 10 points.

The band multipliers are:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Logs

Logs must cover the full contest period and contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable),
- Specific FREQUENCY (not just band) and callsign of station worked,
- Approximate location of station worked (if not QTHR),
- Reports and serial numbers sent and received,
- Estimated distance worked and points claimed.

Separate scoring columns for each band would be helpful. The Contest Manager reserves the right to correct distance estimates on the basis of computer calculation.

Summary Sheet

Logs must be supplied with a Summary Sheet containing:

- Operator's callsign, name and address,
- Station location (if different from the postal address),
- Section(s) entered, and a list of the UTC days to be scored,
- A scoring table set out as the example below,
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the Contest Manager's ruling will be accepted as final.

Send Logs -

1. by MAIL to:
   WIA Ross Hull Contest Manager,
   3 Vernal Avenue, Mitcham, 3132

2. by e-mail in **plain ASCII text ONLY** to: jmartin@xcel.net.au

Sample Scoring Table

Band	6 m	2 m	70 cm	etc
Score	xxxx	xxxx	xxxx	xxxx
Band Multiplier	x 1	x 3	x 5	x x
Total	xxxxx + xxxxx + xxxxx + xxxxx = xxxxx (GRAND TOTAL)			

Note on Calculating Distances

Absolute accuracy is not required.

All you need to know is whether the other station is above or below the nearest multiple of 100 km.

An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a simple computer program published in December 1996 "Amateur Radio".

A more accurate and fully error-trapped program is available, which also includes calculation of bearings and conversion between lat/long and Maidenhead locators.

It is available if you send a 3.5 inch disc in a mailing box to the above address, together with return postage. Alternatively, you can send a message to the e-mail address above.

Spring VHF-UHF Field Day 1999

John Martin (VK3KWA), Contest Manager

13 - 14 November, 1999

VK6: 0400z Sat - 0400z Sun

Others: 0100z Sat - 0100z Sun

The contest rules are much as the same as for previous VHF-UHF Field Days, but there are two changes. The times have been changed to take Summer Time into account - something which I overlooked last year! The starting time will now be Midday local time in most call areas.

The other change is an adjustment to the band multipliers to increase the incentive for stations operating only on the lower bands. The same band multipliers will also be applied to the Summer VHF-UHF Field Day and the Ross Hull Contest.

Please check the log requirements and make sure that you supply all the necessary information. Club stations, please note that I need the names and callsigns of operators, printed legibly, so that I can include them in the results lists and certificates. Signatures are not much help if I can't read them!

I hope you will be able to head for the hills for at least part of the Field Day weekend. if you can't manage to mount a full expedition, you might even consider just going for a nice long drive and activating a few grid squares on the way.

Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, any 6 consecutive hours.

C: Portable station, multiple operator, 24 hours.

D: Home station, 24 hours.

Single operator stations may enter both Section A and Section B. If the winner of Section A has also entered Section B, his log will be excluded from Section B.

If two operators set up a joint station, they may enter Section C under a single callsign, or sections A/B under separate callsigns. Stations with more than two operators must enter Section C.

General Rules

One callsign per station. Operators of stations in Section C may not make contest exchanges using their own callsigns. Operation may be from any location, or from more than one location. You may work stations within your own locator square. A station is portable only if its equipment, including antennas, is transported to a location other than the normal home location of its operator. Repeater, satellite and crossband contacts not permitted. No contest operation is allowed below 50.150 MHz. Recognised DX Calling Frequencies MUST NOT be used for any contest activity. Suggested procedure is to call on .150 on each band and QSY up. CONTEST EXCHANGERS/RST reports, a serial number, and your four digit Maidenhead Locator. REPEAT CONTACTS Stations may be worked again on each band after three hours.If the station is moved to a new locator square, repeat contacts may be made immediately. If the station moves back into any previous locator square, the three hour limit still applies to stations worked from that square.

Scoring

For each band, score 10 points for each square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows: 6 m 2 m 70 cm 23 cm Higher x 1 x 3 x 5 x 8 x 10

Then total the scores for all bands.

Sample Scoring Table

Band	QSO Points		Locator Points		Multiplier	
Total 6 m	100	+	200	x	1	=3002
m	60	+	120	x	3	=540
Overall Total						840

Logs

For each contact: UTC time, frequency, station worked, serial and locator numbers exchanged, points claimed. The SUMMARY SHEET should contain the names and callsigns of all operators; postal address; station location and Maidenhead Locator; section entered; a scoring table and signed declaration that the Contest Manager's decision will be accepted as final.

Send Logs

by mail to:

Spring VHF-UHF Field Day, PO Box 2175, Caulfield Junction, 3161, by 1 December, 1999.

NOTE: Following several requests AR will endeavour to provide a suitable Locator Map in the November issue of AR and the WIA Yearbook (Callbook).

SPOTLIGHT on SWLing

by Robin L. Harwood VK7RH
5 Helen Street, Newstead Tasmania 7250
(03) 6344 2324
E-mail: robroy@tassie.net.au

The situation in East Timor, following the United Nations referendum, markedly deteriorated with the Pro-Indonesian militia, running amok, forcing the UN personnel to flee to Darwin on RAAF C-130 aircraft. Some monitors heard these aircraft communicating with Air Force Darwin on 8 and 11 MHz. The mode has been USB and digitally encrypted speech.

Radio Australia, our own international service has been following developments as they happen with extended newscasts. No sign yet of the Darwin site being re-activated.

There are hundreds of Indonesian stations on SSB across the HF allocation. Some have been logged in amateur bands and others in exclusive aero allocations, especially between 8.8 and 9 MHz. There are networks between 10 and 11.3 MHz. They seem to shift about and seemingly do not adhere to any regular schedule. Many, I suspect, are illegal operators judging by their on-air behavior. You may have heard this on 7.000 MHz USB and LSB. They also are on 7.005 USB and 7020 LSB. They are not hams.

The official Voice of Indonesia from Jakarta is broadcasting in English on 11790 kHz at 0800 but their pronunciation is very poor, making it hard to comprehend.

Portugal broadcasts to Timor as follows :

Mon-Fri, Tetum and Indonesian:

1000-1100 Timor 11550 (via Taiwan) and 17740

2100-2200 Timor 17600

2200-2300 Timor 11550 (via Taiwan) and 17600

1100-1200 Timor 17740

Tetum is the language of the Timorese.

There also are broadcasts in Portuguese from 1200 till 1400 on 17740 on weekdays and from 1000 to 1155 at weekends.

Radio HCJB in Ecuador has moved from 15115 to 11755 for their South Pacific service from 0700 till 1100 UTC. The 19-metre frequency was not propagating well.

Deutsche Welle from Cologne is to be cutback from this month. This will result in:

1. Loss of 6 foreign language services
2. Less broadcast time for up to ten other language services
3. Elimination of DW's monthly international radio/TV program guide
4. Elimination of DW's monitoring service
5. Elimination of DW radio's English language news department. (In future, news would be taken from DW TV)

Elimination of 160 full time jobs and 300 freelance journalists with another 200 jobs lost through future attrition.

The languages to be axed are Spanish to Latin America, Czech, Slovak, Hungarian, Slovenian and Japanese. Portuguese to Brazil would continue but via Internet Audio.

The Southern Cross DX Club in Adelaide has ceased following the failure of nominations for their committee at their Annual General Meeting. I was Member 807 and had paid up until July 2000. This now leaves the Australian Radio DX Club as the sole club in Australia. Don't forget that the new broadcasting period commences at 0100 UTC October 31. This coincides with Europe reverting to Standard Time and some Australian states going over to SummerTime. (Tasmania is going over on Sunday October 3rd and NZ on the 10th). The new period is designated as B99.

Also don't forget the St Helena tests on the 23rd of October from 1900 till 2300 on 11092.5 kHz USB.Well that is it for this month. My thanks go again to the Electronic DX Press (EDXP). 73,

ar

NETS

All Times AEST unless otherwise stated.
All HF Frequencies are ±QRM and subject to band conditions.
All listings are correct as received but may change with little notice.

Daily

0230	AK Pacific Net		14.292
0600	GNARLY operators net TOWNSVILLE		CW 3.600
0630	GNARLY operators net TOWNSVILLE		SSB3.600
0800	Gold Coast ARS		146.700
0800	Ipswich & District ARC (not Sundays)		146.900
0815	Good morning Sunshine Coast		146.850
0830	Hervey Bay CW Net		3.528
1300	TRAVELLERS NET		(vk6hh)14.116
1600	GOLD COAST Almoners Net	VK4AAA George	146.700
1600	Capricornia Club	vhf simplex ch 50 and	3.620
1800	ZL COUNTIES AND BRANCH HUNTERS NET (weekdays)		3.677
2100	Seance Net	(Rodger VK4YB)	1.832

Mon

0800	Ipswich and District Radio		146.900
0930	Mackay Amateur Radio Association		3.597
0930	Mackay Amateur Radio Association		146.775
1600	YL 222 DX net	ZL1AMN (Dave)	14.222
1930	BARC (BRISBANE AMATEUR RADIO CLUB)		28.450
1930	BAYSIDE DISTRICT AMATEUR RADIO SOC. INC RBS		146.875
1930	Gold Coast ARS		1.840
1930	Gympie ARC		RGY 146.625
1930	MACKAY ARA		3.597RMK 147.000
1930	WIA<q> NEWS AND INFO PROGRAM VK4 followed by.		3.605
2000	REDCLIFFE RADIO CLUB UHF NET		438.325
2000	THE WIA<Q> CLUB NET HELP AND INFORMATION FOR ALL CLUBS		3.605
2000	ALARA during daylight saving hours		3.580
2030	ALARA "proper time"		3.580
2200	ALARA VK6 YL NET VK6YF Poppy		3.585

Tue

0030	Handi-Ham Disabled Net (USA)		14.265
1200	Working Girls Net (USA)		14.288
1730	RAFARS SSB NET (0730UTC)		14.290
1900	Air Forces AR Net/Northern Div/ daylight saving		3.567
1930	Air Forces AR Net/Southern Div/ "proper time"		3.608
1930	Ipswich Club net	(award available)	3.575
1930	Southside Amateur Radio Society		146.450
1930	Southside Amateur Radio Society		147.075
1930	VK7 WIATAS WIANEWS ReBcast		3.590
2000	Mt Isa ARG Club Net		3.610/605
2000	Air Forces AR Net/Northern Div/ "proper time"		3.567
2030	Air Forces AR Net/Southern Div/ "proper time"		3.608

Wed

1000	MotorCycle Hams	net control in USA	7.290
1400	PROBUS CLUB NET		7.050
1430	PROBUS CLUB		14.150
1500	PROBUS CLUB INFO FROM VK5XI@VK5LZ		21.175
1800	Townsville Ladies Net (vk4mum Anne net control)		146.700
1930	Bayside District Amateur Radio Club		3.567
1930	BARC		146.550
1930	Gold Coast ARS		3.605
1930	Land Forces Amateur Radio Group		3.590
1945	Tablelands Radio and Electronics Club		3.580
2000	2ND WED of mth Bris VHF group net	3.608	147.000
2000	Redcliffe Radio Club Award net		3.612
2000	VK1WI DIVISIONAL NEWS BCAST / wact award	7.090	3.570
2030	Royal Sigs AR Society 1030utc VK1GD Dave		3.615
2100	PROBUS CLUB NET VK5XI BRUCE		3.595

Thur

0300	YL European Net	GM4YMM Christine	14.243
1730	DRL NET 1st THURSDAY Rockhampton Dist. Ladies		3.575
1900	SCARC 80m net		3.595
1915	Hervey Bay WICEN Net		146.650
1930	GLADSTONE AMATEUR RADIO CLUB NET	(VK4BPA)	3.570
1930	Hervey Bay NET		(VK4CHB)3.615
1930	WICEN Gold Coast		146.700

Fri

0700	INTRUDER WATCH NET		3.578
0900	VK4 DISABLED PERSONS NETNC.	Norm VK4CNP	3.590
1400	YL CHAT	VK6DE Bev	21.188
1500	YL NET	VE,VK,ZL	14.148
1600	Capricornia Electronics Club Net	146.500	3.620
1600	Air Forces AR Net/Southern Div/		3.605
1630	Air Forces AR Net/Southern Div/		7.085
1730	RAFARS CW NET	(0730UTC)	14.055
1930	YL VK4 NET		3.565
2000	Fisher's Ghost Net		3.850
2100	Scout Net.. WA Branch Radio Team VK6SH		3.590

Sat

0745	80m AM AUSTRALIA NET VK4JHM MICK		3.580
1630	Royal Sigs AR Society 0630utc VK5GZ Lindsay		14.153
1700	IPARC-ON net:	0700utc on	7.075
1930	Darling Downs Club Net VK4WID award available		3.587
1930	MILITARY RADIO OPS/COLLECTORS Net Control In Europe		7.095

Sun

0800	Cairns AR & Electronics Club		3.572
0830	Caboolture Amateur Radio Club		3.610
0830	Tablelands Radio Electronics Club	3.550	RTA 146.675
0830	Townsville ARC NET		28.365
0830	WICEN QUEENSLAND HF NET		7.075
0830	VK7 WIATAS DIV NEWS	3.570 7.090	14.130
0900	BRISBANE REPEATERS 438.525	RBN147.0	RLB 53.725
	HF SIMPLEX1.825 3.605 7.118 14.342 28.400		29.220FM
	RBU BUNDABERG		146.800
	RAR CQ BRANCH		146.700
	RET DALBY		146.675
	RGA GLADSTONE		146.900
	RGC GOLD COAST		146.700
	RMV MIRIAM VALE		147.625
	RMI Mt.ISA		146.700
	RSC SUNSHINE C		146.850
	RAT TOWNSVILLE		146.700
	VK4		MOST HF BANDS
0900	R.O.A.R Rotarians of Amateur Radio VK3DNE CONTROL		7.080/7.070
1000	Darling Downs Club net & local news		146.750
1200	National Scout Net 1/3/5th Sundays	VK6SAN	14.190
	2nd Sunday of month		21.190
	4th Sunday of month		28.590
1830	MILITARY RADIO OPS/COLLECTORS	Net Control in Europe	14.145
1900	REDCLIFFE RADIO CLUB VHF NET		146.925
1900	Central Highlands ARC 3rd Sun of month only		3.620
1900	SSTV group of South African Airforce Net ZS1MUS		14.230
1900	WIA<Q> QNEWS rebroadcast of LAST weekends news	3.605	147.000
1930	REDCLIFFE RADIO CLUB HF NET		3.612
1930	WIA<Q> SLOW MORSE		3.535
1930	SEQTRA		3.640
1930	Southside Amateur Radio Society		28.450
1930	Southside Amateur Radio Society		3.565
1930	Townsville ARC NET 80m @ 8PM RELAYED ON 2m		3.6054
1930	WICEN Bris. area group net		147.000
2000	CBRS {CITY of BRISBANE RADIO SOCIETY} 3.575		146.475
2000	Ipswich & District WICEN net		146.900
2000	North Queensland Net		146.700
2000	Townsville Amateur Radio Society		3.605
2000	Fisher's Ghost Net		28.520
2000	Rotarians Of Amateur Radio (ROAR) VK4DP net crl 14.293		
2000	Scouts.. Victorian netVK3JNI		3.59
	Tasmanian netVK7EI		3.590
2000	South African Airforce Net ZS6ZRB7.076		14.170
2030	Sunshine Coast ARC "Ask the Expert"		Tech net 146.850
2030	Townsville Amateur Radio Society		28.365
!!	YL ACTIVITY DAY 6th DAY		
	OF EACH MONTH	14.288 21.188	28.588
	LISTEN ON THE HOUR AND/OR CALL CQ YL		

ICOM Clearly Ahead

"VK3LZ calling!"

More sound information from your friends at Icom

THE LAST HAMFEST OF THE CENTURY!

With 1999 rapidly drawing to a close, the Gold Coast Hamfest on November 13 will be the last Hamfest of the twentieth century. A fact not lost on the organisers I'll bet. I'm sure they'll have a terrific event in store for those attending to make sure everyone sees out the old year with a bargain. Look for the folks from Icom if you attend.

A YEAR OF ICOM BREAKTHROUGHS

It's the end of the century soon and this year Icom has released some real twenty first century breakthrough products. The amazing IC-R2, at just 8.6cms high you can fit the world's airwaves in your shirt pocket. The IC-PCR100 that turns a PC into a sophisticated 0.5 - 1300 MHz receiver. The 706MKIIG, an evolution of the legendary 706 delivering base station performance and features in a mobile rig-sized package. The IC-2800H. A powerful dual band mobile rig with a multi-function colour LCD screen with colourful 3D-like characters and icons. And of course the IC-T81A remarkably compact quad bander. Its 'joy-stick' style multi-function switch was an innovative new feature allowing the user to change volume and bands even quicker. These are just a few examples of Icom's breakthrough thinking for the end of the century. There's lots more on the way in the new millennium so there are exciting times ahead for every Icom enthusiast.

"...73"

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SILENT KEY

The WIA regrets to announce the recent passing of:-

D C FOSTER	VK2VE
A G WILKEY	VK3AGW
D L ROBINSON	VK3ALD
(Harry) COX	VK4OX
L E WERNER	VK5XN

Charlie Miller VK2ADM/ VK4QM

My mind is flooded with memories of my good friend, Charlie Miller, who passed away on 25 May 1999. Many will remember him as VK2ADE from Casino where he had a superior signal from the north coast of New South Wales.

My log book indicates that 21 March 1961 on 15 metres was my first contact with Charlie. His homebrew AM transmitter ran about 100 watts with an 813 in the final. A National receiver, which he completely reworked, with a tri-band spider type quad antenna at 60 feet.

Our first meeting was in December of 1961 in Casino, beginning a lasting and loving friendship with Charlie and his wife Queenie. With his help, I got a job with RTN-8 on the North Coast. We settled in Lismore, NSW and lived there until mid 1967. During those years we became good friends of the Miller family. We returned to NSW occasionally throughout the years and always maintained our relationship via radio.

During our last visit to Charlie's home in December 98, I found this following information in Charlie's log book:

His original AOCP licence was #3631 issued 1 December 1933 and his call sign was VK4US.

In 1938 Charlie went to England with his RAAF Squadron to bring back a Sunderland flying boat to Australia. Once there, they were pressed into service to fly submarine patrol over the North Sea.

He met and married Queenie there. After his tours of duty, they returned to Casino where Charlie opened a radio repair shop. In July of 1966 they moved to Caloundra, Qld.

His final VK2ADE contact was on 27 June 1966.

His first Caloundra contact, with a new call of VK4CM, was on 3 Sept. 1966. However he gave the 4CM call back to old friend, Tom Elliott.

His new call was VK4QM and the first contact was 22 Sept. 1966.

The last entry on his log was 10 April 1994, listing 100,043 contacts.

Letters in his log indicate that he was authorised to make repairs on fishing vessels in Ballina. One, signed by C.M.King, says he is the only person authorised to do so. He had experimental license #5369 for 50 watts on 50 to 54 and 28 to 29 MHz. It was in effect until 19 December 1945.

In Feb. of 1955, during a major flood in Casino, Charlie provided invaluable communications assistance between the district and the outside world until normal contacts were restored. His efforts were skilful and admirable.

Charlie enjoyed contesting and home brewing equipment. CW was his favourite mode. He was TOP WORLD in the CQ WW CW section in 1958 and at the top of the DXCC Honour Roll for some time. In a 6-metre contest between ZL and VK he won a new 6-metre transceiver. He was continually building and trying new circuits. He was a member of ARRL and the WIA and looked forward to QST and AR each month.

Charlie's dear wife Queenie died in 1982. He is survived by son Ian Miller, daughter Heather Creighton, six grandchildren and one great grandchild.

Charlie was an "Amateur" in the true meaning of the word—giving of his time and talent and asking nothing in return. My family and I will never forget the help and friendship that was so freely given. It was my good fortune to have had such a friend as Charlie Miller, VK2ADE/VK4QM for so many years. He will be lovingly missed

Bill Rogers K6VVY.

Mr K Wood VK4FAA

We regret to announce that Mr K Wood VK4FAA passed away last Thursday morning (9th Sept 1999?) at the Caboolture hospital and his funeral was held on the Friday. Ken, VK4FFA moved to Kilcoy, Queensland a number of years ago, from VK2. Then moving to Caboolture about five years ago where he became a good friend and neighbour of Jason VK4YOL.

Ken also donated his Kenwood 530 to the Redcliffe Radio Club last year.

Now may you rest in peace, Ken

(Jason Morris VK4YOL)

AR on the WEB

Alan Meredith VK2NNN
295 Iodide Street
Broken Hill NSW 2880
vk2nnn@vk2nnn.com
http://www.vk2nnn.com

Scouting for Amateurs

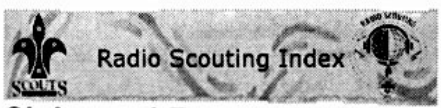
Every year in October two large groups join together to further the cause of friendship around the world.

Annually over 50,000 scouts enlist the help of Amateur radio operators from around the world to make contact with other scouts. The scouts who participate each gain a badge as well as an introduction to the world of radio. Amateur radio gains a whole new audience of eager participants willing to learn about the joys of "Ham Radio". It is also a great way to meet a few new people and to share in the enthusiasm of the kids involved while doing what we all love to do.

JOTA/JOTI

This is called the JOTA (Jamboree on the Air) weekend and many Australian amateur operators take time out to participate. Information on JOTA/JOTI in Australia can be found at: http://www.scoutlink.org.au/Radio_S/RSindex.htm or internationally at: http://users.scoutnet.nl/~inter/joti.html Coinciding with JOTA is JOTI (Jamboree on the Internet), which is only 3 years old, and is growing quickly in popularity. This is normally held using, what is known as, IRC or Internet Relay Chat, which is similar to our conferences on Packet. A popular program for IRC is MIRC, which is available to download from the Net at: http://www.mirc.co.uk/linking.html

General information about Scouting can be found at: http://www.scout.org/



Clubs and Events

Amateur radio also has its share of annual events. Again the Internet is a great place to find out about these events and also about the clubs or individuals who sponsor them.

There are many Australian amateur radio clubs with home pages on the Net. The WIA (Wireless Institute of Australia) has quite a comprehensive listing of these sites at: http://www.wia.org.au/federal/clubs.html

There are quite a few specialist sites run by some clubs and also individuals focusing on a particular aspect of Amateur Radio in Australia.

The Australian Amateur Packet Radio Association at: http://www.aapra.org.au is a good place to start the search for Packet radio information. From "what is Packet radio" through to hardware and software required etc. Another Packet related site is The Melbourne Packet Radio Group Inc, http://www.mprg.ampr.org/ run by Peter Hallgarten VK3AVE. Peter runs a CLX DX packet cluster and information, including setup details and user manual, can be found on his site.

ATV enthusiasts (Amateur Television) can access some great information about ATV at the Gladesville Amateur Radio Club (GARC) at: http://welcome.to/TelevisionGladesville/

Foxhunting, or Radio Sport as it is known around the world, is another popular amateur radio pastime and the Melbourne Foxhunting pages will provide you with all the information you could want on this aspect of our hobby. http://www.ozemail.com.au/~efl/fox.html

"Six Metres isn't a hobby it's a life" Well that's what VK2QF says about it anyway and his site is a good place to look for Six Metre information. You'll find quite a few links to sites devoted to the "Magic Band".

Another excellent 6m site, one of the most comprehensive (on any subject!) I've seen, is run by Jim VK1ZFG.

http://www.qsl.net/vk1zfg/ Jim's site has everything you could ever wish for regarding 6m.

If you want to go higher than Six then check out David Minchin VK5KK's "Australia Above 100 MHz" pages.

(Cute dog David!) This site has lots of info about everything from UHF through to Microwave. David has info on Kits, projects, how to get started in Microwave, beacons, distance records, propagation and lots of useful links to other Microwave related information.

Of course not all clubs or groups are maintained just for enjoyment of the hobby. WICEN is "a group of trained Amateur-Radio operators, accredited to take part in disaster situations, and able to provide emergency and safety communications when normal communications do not exist or are inadequate". Information about WICEN can be found at http://www.wicen.org.au/

The pages I have reviewed are only a fraction of what is available on the Internet in Australia relating to Amateur radio clubs etc. Check out what is available in your area and remember that without members no club survives, so consider joining one near you.

Of course lets not forget that Australia's "biggest" club is the WIA! Again members are what make it "tick". As well as the Federal WIA home page on the Net at http://www.wia.org.au each State also has its own presence on the Net which can be accessed from the Federal pages.

There is also a huge number of club related sites "out there" in the world that all have their own special interest or information and a listing of some of these can be found at the ARRL (Amateur Radio Relay League) site at: http://www.arrl.org (1962 at last count!)

Remember if you find something cool then let me know at vk2nnn@vk2nnn.com so we can share it around. Speaking of cool, checkout CQExpress which lets you access your ICQ from anywhere. You can download it from:

http://www.cqexpress.com/

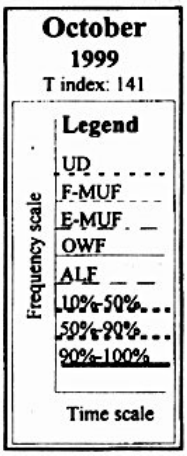
(even at work! No I wouldn't do that! Honest!!)

ar

HF PREDICTIONS

by Evan Jarman VK3ANI
34 Alandale Court, Blackburn Vic 3130

October 1999
T index: 141



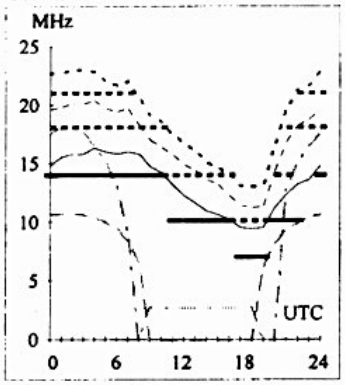
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Useable Frequency
- E-layer Maximum Useable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

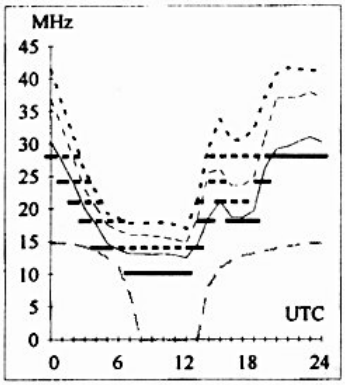
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies; when useable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAPS version 4.

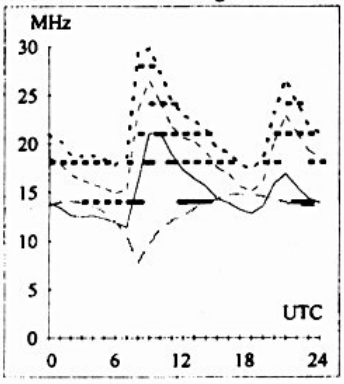
Adelaide-Auckland 104
Second 2F14-21 2E2 Short 3240 km



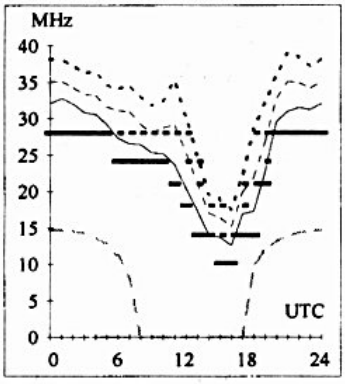
Brisbane-Chicago 57
First F 0-5 Short 14360 km



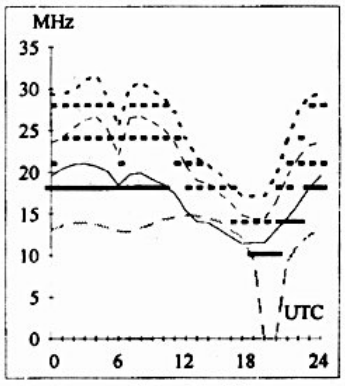
Adelaide-London 132
First F 0-5 Long 23755 km



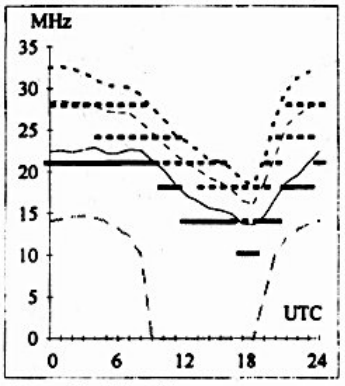
Brisbane-Honolulu 49
Second 3F5-12 3E0 Short 7569 km



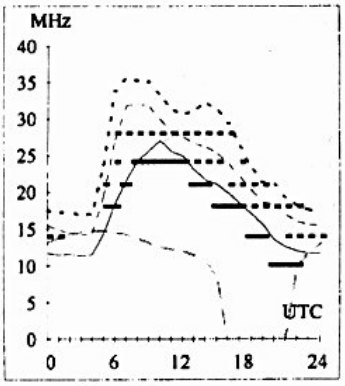
Canberra-Dakar 214
First F 0-5 Short 17361 km



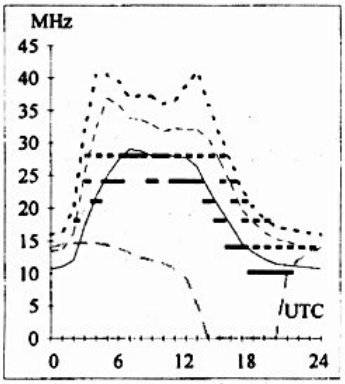
Darwin-Christchurch 139
First 2F5-9 2E0 Short 5281 km



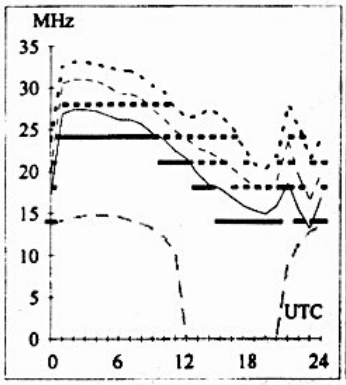
Adelaide-London 312
First F 0-5 Short 16269 km



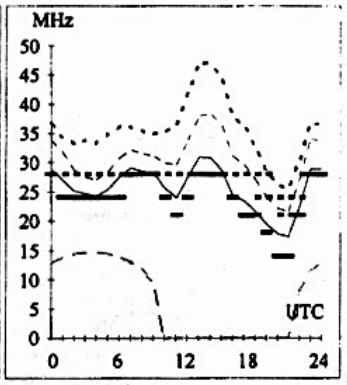
Brisbane-Moscow 321
First F 0-5 Short 14071 km



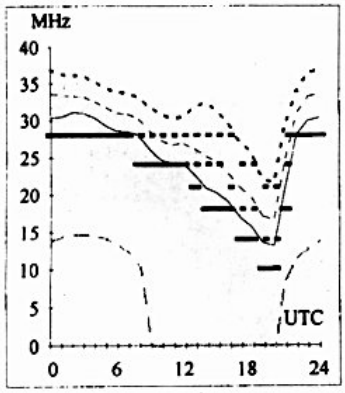
Canberra-New Delhi 303
Second 4F5-11 4E0 Short 10348 km



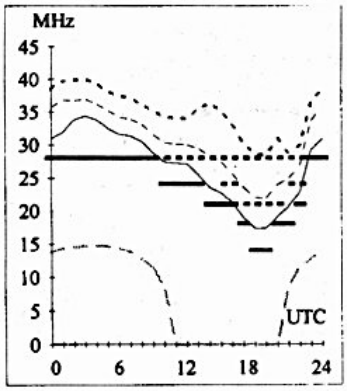
Darwin-Manila 340
First 1F1-12 1E0 Short 3198 km



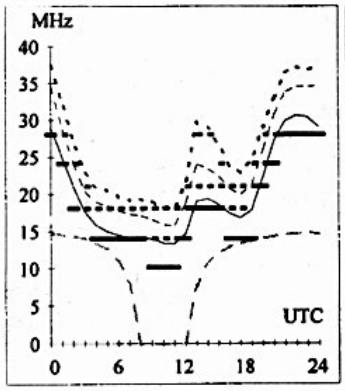
Adelaide-Tokyo 1
Second 3F5-12 3E0 Short 7855 km



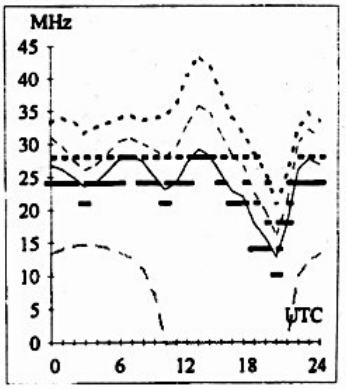
Brisbane-Singapore 293
First 2F2-7 2E0 Short 6147 km



Canberra-Washington 70
First F 0-5 Short 15939 km

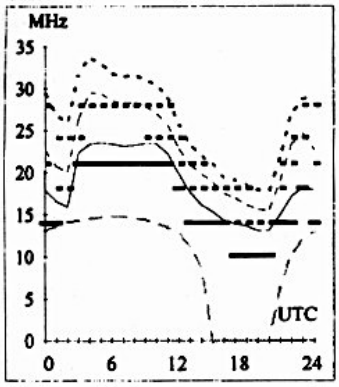


Darwin-Osaka 5
First 2F5-14 2E0 Short 5263 km

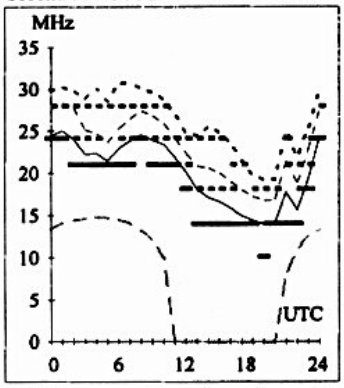


HF Predictions

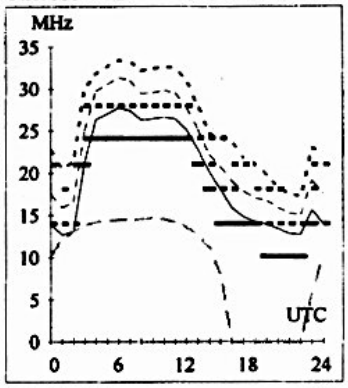
Hobart-Amman 283
First F 0-5 Short 14003 km



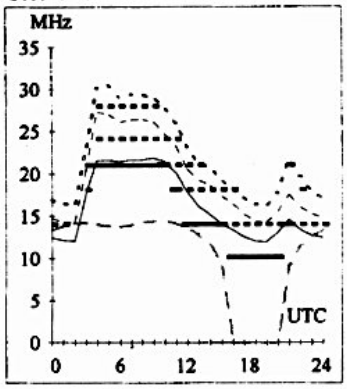
Melbourne-Bangkok 312
Second 3F6-14 3E0 Short 7372 km



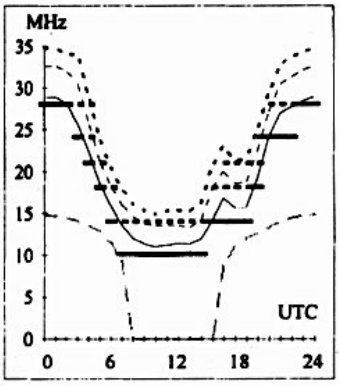
Perth-Harare 257
First 3F3-8 3E0 Short 8496 km



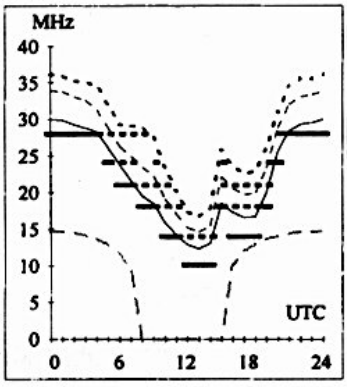
Sydney-Johannesburg 230
Second 4F4-9 4E0 Short 11035 km



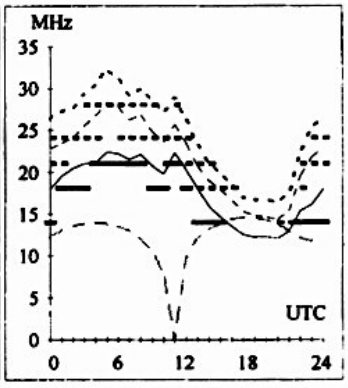
Hobart-Calgary 51
First F 0-5 Short 14087 km



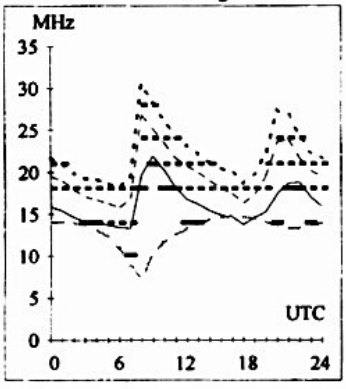
Melbourne-Los Angeles 65
First F 0-5 Short 12772 km



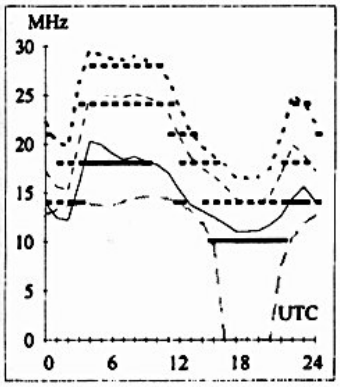
Perth-Lima 162
First F 0-5 Short 14931 km



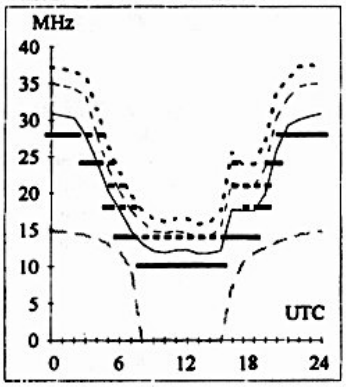
Sydney-London 139
First F 0-5 Long 23032 km



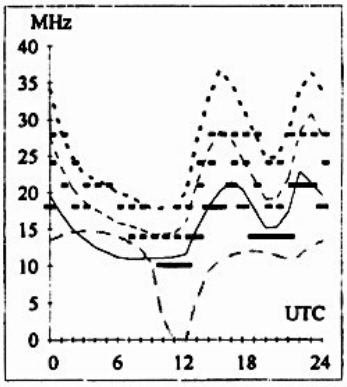
Hobart-Lusaka 239
Second 4F4-9 4E0 Short 11045 km



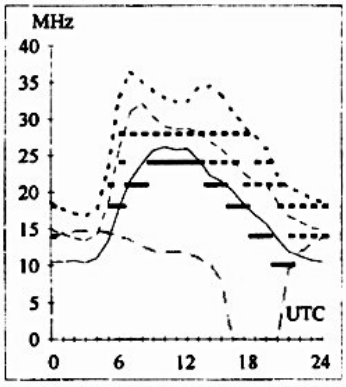
Melbourne-Seattle 50
First F 0-5 Short 13180 km



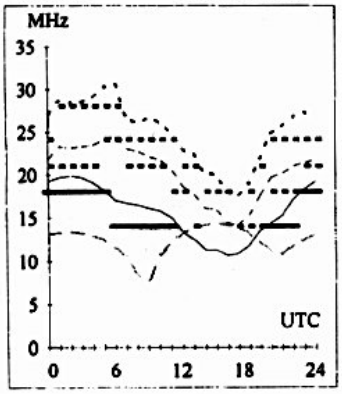
Perth-Ottawa 30
First F 0-5 Short 18212 km



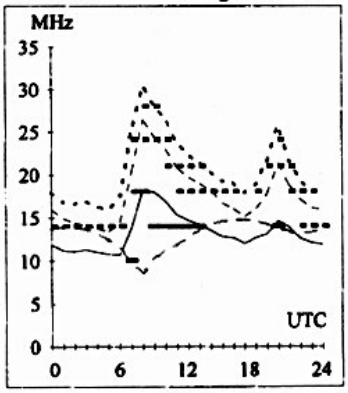
Sydney-London 319
First F 0-5 Short 16992 km



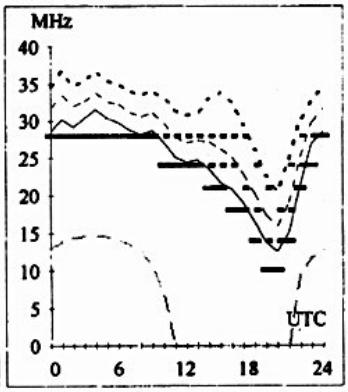
Hobart-Rio de Janeiro 169
First F 0-5 Short 12619 km



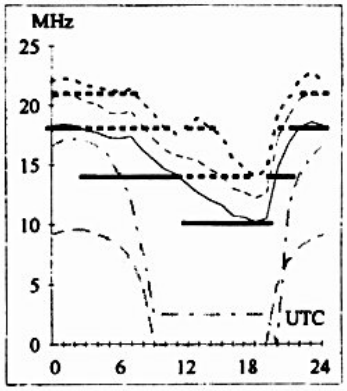
Melbourne-Stockholm 140
First F 0-5 Long 24424 km



Perth-Tokyo 20
Second 3F4-12 3E0 Short 7923 km



Sydney-Port Moresby 351
Second 2F17-25 2E4 Short 2740 km



HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Postal: *Newsletters Unlimited, 29 Tanner Street, Richmond, 3121*
Fax: *03 9428 4242* *E-mail: newsl@webtime.com.au*

Please only send your Hamad once
Please send Hamads by mail OR fax OR email (much preferred).
Please do not send by more than one method for any one ad or issue, it is confusing.

WANTED NSW

• **Kantronics Kamplus Modem**. Details to Doug, VK2DDR. Phone (02) 9949 3426

• **3BZ cover, box, speaker, or power supply** to complete a restoration.These are a grey heavy steel box with rounded corners, similar to the AWA test instrument boxes but bigger. Any parts or units welcome, any condition, costs paid. Ray Robinson VK2ILV 7 Roland Ave Wahroonga 2076 (02) 94898561 (02) 98508765 robinson@srsuna.shlrc.mq.edu.au

WANTED VIC

• **Yaesu RMK 747 Remote Head Kit** for FT747. Contact Ray VK3FQ. Phone (03) 5436 8301.

• **Akai M5 or M7 stereo tape recorder**. Need motor power supply only. No heads required. Stan VK3AYF. (03) 9700 4903 QTHR.

WANTED – QLD

• **Test equipment. Huntron Tracker 1000 Series** or similar for component testing. Must be 100% working condition and instruction manual. June VK4SJ QTHR. (07) 5492 9205.

• **Meter for AVO Mk2** Valve Characteristic Tester (same meter also possibly fitted to other AVO valve testers) Contact: Peter, VK4COZ, 3378 6047 or p.holtham@mailbox.uq.edu.au

• **Linear amplifier HF prefer Henry 3 or 4K**, Tentec, Commando; Alpha, must be heavy duty; Monoband 14MHz Yagi and heavy duty rotator; Deeko tower sections. Contact: John Abbott VK4SKY. PO Box 1166 Coolangatta Queensland 4225. (0417) 410 503. Email: benoel@fan.net.au

WANTED - SA

• **Power tranny for linear amp** 400 – 600V a side at 300mA or more. Other sizes OK. Complete power supply would be fine also. Murray VK5BVJ QTHR. Phone (08) 8738 0000.

WANTED WA

• **Kenwood TL922 2KW PEP** input 160 - 10m linear amplifier. Will do the 400W PEP output legal limit with ease. Excellent condition. Complete with manual and two spare 3-500Z tubes. $1500. Steve VK6VZ (08) 9298 9330.

• **Radar Parts** wanted for museum display LW/AW Radar Indicator chassis and or parts, Valve Caps to suit 807 and 6J7G valves, insulated extension couplings for potentiometer shafts. Mark VK6AR 08) 9417 4536 or Packet at VK6AR@VK6BBS.#PER.#WA.AUS.OC for the WA RAAF RADAR GROUP

FOR SALE – NSW

• **Morse keys**. Clipsal on bakelite base with lacquered brasswork $35. WW2 Bomber bathtub (slight damage) $20. Bendix MT-118 Aircraft type $20. WW2 Australian Services made by PMG (small model) $8. Similar WW2 Australian Services on steel base B50410 $10. All VGC. Ric VK2PH QTHR. (02) 9817 0337. Postage extra.

• **Kenwood R2000 receiver**, including VHF converter service and owner manuals. Original packaging. Serial no. 3070619. $550. Maurie VK2OW QTHR. Phone (02) 9838 1834.

• **Antenna 2 element tri band Yagi** 10-15-20 metre TET Emtron TE23M. Condition as new. $220. VK2LK QTHR. (02) 9635 6874

• **Yaesu FT50R 2m/70cm hand held** with large battery. Very little used. Original packaging. Leather case. $400. David VK2BDT (02) 4821 5036

• **Kenwood TS-530S** inc 1.8kHz SSB Filter & IF out $600, SM-220 with band scope $350, VFO-230 $150, AT-230 $230, MC-50 Mic. $90, TR-751A 2m all mode inc mobile mount $650, TH-215A 2m H/Held $270, Cushcraft R5 vertical $220, AWA MRT-25A xcvrs (3) 70-85MHz FM with service manual $50 , Model 15 TTY inc 100V DC loop supply, decoder and paper $15, Military HF C11 tx, R210 rx, C45 txcvr 23 to 38 MHz, C42 xcvr 36 to 60 Mhz inc 24V supplies (2), cables, headsets and mics $600, Military HF Sig Gen No1 MK3 $150, Leader LSG-11 HF Sig Gen $50, HP VTVM 410B, Viewpoint RS-232 Terminal, Z80 CPU's, TS-830S Service manual, valves and other components. CBs AM (2), 27MHz SWR meter. Graeme VK2CCK 0414-929 220 or (02) 9810-8386 QTHR.

FOR SALE – VIC

• **Deceased estate. Jack VK3JA**. Kenwood TS430S XCVR. Heathkit SB200 linear. Johnson matchbox ATU. Emtron EAT300A ATU. Codan 7208 MK2B ATU. Icom IC22S XCVR. Codan 8222 Selcall Kenwood PS430 PS VKPowermate PS 2M Yagi. Many miscellaneous items. John (03) 5566 5258 or Max (03) 5566 5182. Mob. 018313441.

• **Yaesu FT-736R 2M-70** all-mode XCVR internal pwr supp with full data & satellite facilities. Mint condition $1500. Mirage B5016G. 144-148 MHz linear amp. 50W in 160W out. 12V with excellent preamp. EC $450. Codan 7208 MK2B long wire ant. tuner 2-16MHz $135. All items with original packing. Len VK3BMY (03) 5862 3116 QTHR.

• **Standard C520 2m/70cm dual band HT**. with leather case, manual,charger and spare batteries. $275 ono. Ph Chris AH's 03 57 511631 or lorian@albury.net.au

• **Approx. 30 APC Type Variable Caps**. 3 Philips Beehive trimmers. 9 Plunger type trimmers. Free. U pay $2 P&P. Transmitting Variable Caps out of ATUs. $2 each + P&P. Allen VK3SM (03) 9386 4406 QTHR.

• **SIEMENS Level Generator** and Selective Level Meter (0-1600kHz) $90.00. 2 Metre 10El Beam DL6YX $80.00 2 Metre Linear MOCOM 25W PEP $70.00. ROTATOR STOLLE with Controller and Cables $50.00. Ken VK3DQW (03) 5251 2557

• **KENWOOD H/held TR2600a 2m xcvr** 3w c/ case headset chrgr-stand SN5022246 $75 ono. IC 28A/E 2m xcvr 25w extended RX range, SN14889 $275 ono. Both ex cond. full docs and circuits. Ryobi Drill-driver HB10AR 180rpm, chuck, sockets, bits, variable clutch, ex cond. Keith VK3AFI QTHR 03 5221 3658.

• **Complete Marconi mark 4 camera channel,** from SPG to CCU. Lenses also included. It needs a good home. PYE SPG also available. Please contact Bruce VK3YYD by Email - bcutler@melbpc.org.au. Telephone 03 9531 2962. Any good offer seriously considered!

• **Sig. Gen DSE cat Q1312** $180 1.2GHz freq counter DSE Q1322 $100 Kenwood PG3G DC filter $30 AT230 ATU $250 all in as new condx Damien VK3RX (03) 54273121

FOR SALE – QLD

• **Antenna Vertical MFJ-1796 6 band** for 40-20 15-10-6 & 2 m with manual. Excellent condition. 6 months use. AND Antenna Vertical Hustler 4 BTV with 80m add on kit for 10 15-20-40 & 80m with instruction assembly sheets. $300 each ono. June VK4SJ QTHR (07) 5492 9205

• **Kenwood TS-450 HF t/ceiver** w Kenwood SP-23, Kenwood MC-80, YK-885-1 Filter, internal ATU. Good cond. $1700. VK4DIC Dick QTH (07) 3264 1655

• **Pakratt PK232 multimode data controller** complete with connectors and manual. Good condition. $200 ono. Serial number 19065. Ron VK4EMF QTHR. Phone (07) 925211 all hours.

FOR SALE – TAS

• **Realistic Tandy WTX100 10 metre SSB CW** 25 watt mobile base t/ceiver. New and unused. $230.00. VK7AN Allen (03) 6327 1171 or 0417-354410

• **YAESU FT-101B** needs work what offers? DAN VK7DAN QTHR 03 6369 5284 emailto:gdegroot@vision.net.au thanks

FOR SALE – SA

• **KENWOOD TS130S** with 250Hz CW filter #1020354, $400 KENWOOD TS120S #0041656, $400 ROB VK5RG QTHR (08) 8379 1889.

• **ICOM IC-21-E Ser No. 2639 Handheld** 2 + 70 complete with manual,charger and spare battery pack.-BP-157A. $295. QTHR VK5MZ Bill 08 8536 3391.

FOR SALE – WA

• **Kenwood TL922 2KW PEP** input 160 - 10m linear amplifier. Will do the 400W PEP output legal limit with ease. Excellent condition. Complete with manual and two spare 3-500Z tubes. $1500. Steve VK6VZ (08) 9298 9330.

• **Hills 50' Teletower** telescoping two-section tower. Triangular steel lattice construction, with mounting brackets for a rotator, plus base mount. Comes with stainless steel winch cable, but no winch. Excellent condition. $350. Steve VK6VZ (08) 9298 9330.

• **Elements for a 2-element 40 - 10m quad.** Quad elements are around two thirds full size and capacitively loaded on 40m, but full size on 20/10/10m. Uses fibreglass spreaders with aluminium extensions, mounted on angle iron hubs. The elements mount on a 6m long boom (not supplied). If you don't want to use as a quad, the spreaders could be used to make eight large beach fishing rods! $250. Buyer(s) collect both items. Steve, VK6VZ, telephone (08) 9298 9330

TRADE ADS

• **AMIDON FERROMAGNETIC CORES:**
For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama).
www.cyberelectric.net.au/~rjandusimports
Agencies at: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra

• **WEATHER FAX programs** for IBM XT/ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M. Delahunty, 42 Villers St, New Farm QLD 4005. Ph 07 358 2785.

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500 FULL COLOUR front and one colour back — $229 delivered to you. 500 two colour front only — $159 delivered to you
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Please use upper and lower case as in normal text in the Hamad.

2
Please enter the words directly into the body of the email.

WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers		News Broadcasts Note: All times are local. All frequencies MHz.	Fees	
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Gilbert Hughes John Woolner Les Davey	VK1GH VK1ET VK1LD	VK1WI: 3.570 LSB, 146.950 FM each Sunday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (Office hours Mon-Fri 1100-1400) (PO Box 1066, Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Secretary Treasurer Web: *http://marconi.mpce.mq.edu.au/wia* e-mail: *vk2wi@ozemail.com.au*	Michael Corbin Eric Fossey Eric Van De Weyer	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$69.00 $56.00 $41.00
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 (Office hours Tue & Thur 0830-1530) Phone 03 9885 9261 Fax 03 9885 9298	President CEO Secretary Web: *http://www.tbsa.com.au/~wiavic/* e-mail: *vk3wi@rint.com.au*	Jim Linton Barry Wilton Peter Mill	VK3PC VK3XV VK3APO	VK3BWI broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 5496 4714	President Secretary Treasurer e-mail: *wiaq@brisbane.dialix.com.au* Web: *http://www.wiaq.powerup.com.au*	Colin Gladstone Peter Harding Alistair Elrick	VK4ACG VK4JPH VK4FTL	VK4WIA: 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 21.175 MHz, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$74.00 $60.00 $46.00
VK5 South Australian Division (GPO Box 1234 Adelaide SA 5001) Phone 08 8294 2992	President Secretary Treasurer	Jim McLachlan David Minchin John Butler	VK5NB VK5KK VK5NX	VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.	(F) (G) (S) (X)	$75.00 $61.00 $47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	Acting Pres. Secretary Treasurer Web: *http://www.faroc.com.au/~vk6wia/* e-mail: *vk6wia@faroc.com.au*	Cliff Bastin Christine Bastin Bruce Hedland-Thomas	VK6LZ VK6ZLZ VK6OO	VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz, country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton and 146.900 (R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.563 and 438.525 MHz : country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$62.00 $50.00 $34.00
VK7 Tasmanian Division 5 Kywong Crt, Ulverstone Tas 7315 Phone 03 6327 2096 Fax 03 6327 1738	President Secretary Treasurer email: wiatas@hamnet.hotnet.net.au Web: *http://www.wia.tasnet.net*	Ron Churcher Tony Bedelph John Bates	VK7RN VK7AX VK7RT	VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$74.00 $60.00 $46.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).				**Membership Grades** **Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)** **Three-year membership available to (F) (G) (X) grades at fee x 3 times.**		

ADVERTISERS INDEX

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Now you can enjoy the fun of operating on all bands from 160m to 70cm, either at home or in your car, and at a fantastic Yaesu price.

The new Yaesu FT-100 features HF/6m/2m/70cm transmitter coverage with 100W RF output on HF and 6m, 50W on 2m and 20W on 70cm, plus you can easily mount the detachable front panel using an optional lead (YSK-100) for more convenient mobile installations. Powerful interference fighting features such as a DSP based Bandpass filter, Notch filter and Noise reduction, together with an IF based Shift control, all aid reception quality during tough conditions. A Speech Processor and VOX facility are provided for SSB users and an internal Electronic keyer is provided for CW operation. Also included are Dual VFOs, built-in CTCSS encode, 300 memory channels, all-mode operation (SSB, CW, AM, FM, AFSK, Packet 1200/9600bps), 100kHz-970MHz receiver (cellular locked-out), and options for additional AM and CW IF filters.

The FT-100 is supplied with an MH-42B6JS hand mic, DC power lead and comprehensive instructions.

D 3285

YSK-100 remote front panel lead **$155**

D 3286

Included as standard:

- Digital Signal Processing on both transmit and receive
- Effective IF noise blanker
- Electronic CW keyer with 50 character message memory
- Spectrum Scope function
- Massive receiver coverage (100kHz – 970MHz, less cellular)

$2650 SAVE $100

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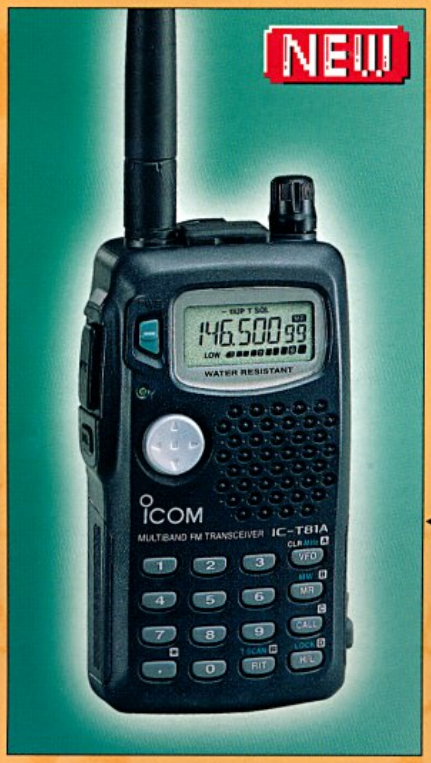

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